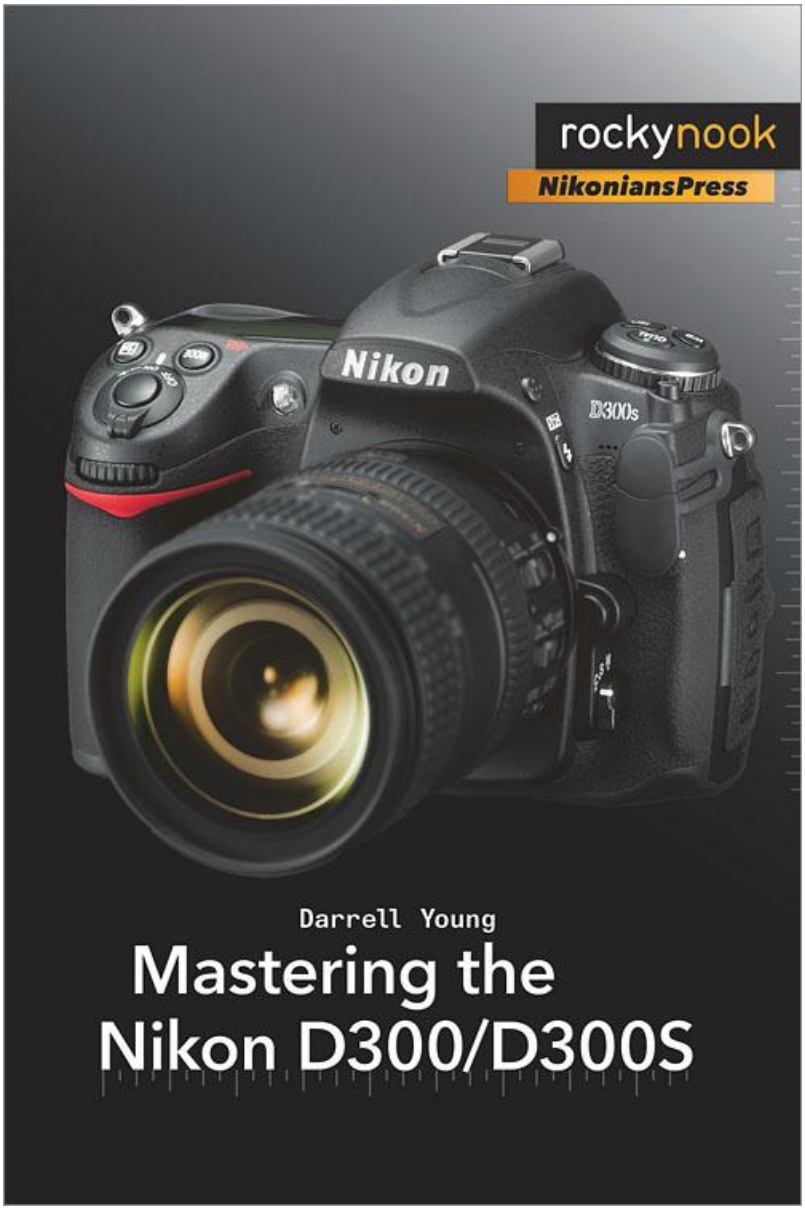
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Mastering the Nikon D300/D300S

Darrell Young

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This book is printed on acid-free paper.

This book is dedicated to:

My wife of 32 years, Brenda, The love of my life and best friend...

My children, Autumn, David, Emily, Hannah, and Ethan five priceless gifts, growing wings ...

My mother, Barbara, who birthed me ...

My father, Joe, who guided my early life ...

My Nikonians editor, Tom Boné, without whose assistance I could not possibly write books ...

My friends, J. Ramon Palacios and Bo Stahlbrandt, who make it possible to belong to Nikonians.org, the world's best Nikon User's Community ...

The wonderful staff of Rocky Nook, including Joan Dixon, Jocelyn Howell, and Matthias Rossmanith ...

And, finally, to Nikon, who makes the world's best cameras and lenses.

Darrell Young – Author

Darrell Young (*DigitalDarrell*) is an information technology engineer by trade. He's been an avid photographer since 1968 when his mother gave him a Brownie Hawkeye camera.

Darrell has used Nikon cameras and Nikkor lenses since 1980. He has an incurable case of Nikon Acquisition Syndrome (NAS) and delights in working with Nikon's newest digital cameras.

Living near Great Smoky Mountains National Park has given him a real concern for, and interest in, nature photography.

He loves to write, as you can see in the Resources area of the Nikonians.org community. He joined the community in the year 2000, and his literary contributions led to his invitation to become a Founding Member of the Nikonians Writers Guild.

Foreword

Nikonian Darrell Young, known to us as Digital Darrell for many years, has consistently been a source of instructional wisdom delivered with a touch of friendly humor. His extensive collection of informative articles has been a valuable resource in the articles knowledge base.... Resources at Nikonians.

This work represents yet another progression in the rapid growth of our international community of photographers from all walks of life, recently exceeding 250,000 members from nearly 150 countries. Providing educational books—such as *Mastering the Nikon D300/D300S*—is a way to confirm our Nikonians vocation in education. Additional ways include: our more than 80 interactive forums, The Nikonian eZine, Nikonians Academy Workshops, Nikonians News Blog, Nikonians podcasts, our Wiki, and eBooks.

Nikonians has earned a reputation as a friendly, reliable, informative, and passionate Nikon user's community thanks in great measure to members like our own Digital Darrell, who have taken the time to share the results of their experiences with Nikon imaging equipment, despite the pressures of their day jobs.

The Nikonians community has long been known as a welcoming worldwide home for Nikon® users, and Darrell's

specialty in this community is the ability to share his knowledge in the spirit of a friendly uncle in the comfort of your own living room. He understands the Nikon D300/ D300s bodies from the perspective of a professional photographer, a dedicated family man, and a good friend, all at the same time.

This approach is crucial in his delivery of valuable information, because it helps him draw examples of shooting situations that are quickly understood by readers from all walks of life.

We would like to congratulate Darrell for his work on this project which goes much further than just delivering a series of chapters and supporting images. In this, the seventh of the NikoniansPress books, in association with Rocky Nook, Darrell has extended his efforts to include work on the book's final layout. This extra step was inspired in great measure by Darrell's penchant for improving the quality of his books to the benefit of his readers. If you are one of the many satisfied owners of the original *Mastering the Nikon D300* authored by Darrell you will quickly see this is not just a mere update to accommodate the D300s. This book has been redesigned from scratch, based on the lessons learned during the D300 project as well as the subsequent books in this series.

Bo Stahlbrandt (bgs) and J. Ramón Palacios (jrp)
Nikonians Founders
www.nikonians.org

Camera Body Reference

Fig 1 (1–11)

1.	Release mode dial lock release
2.	QUAL button
3.	WB Button
4.	ISO Button
5.	Release mode dial
6.	Accessory shoe (hot shoe)
7.	Control panel
8.	MODE button
9.	Exposure compensation button
10.	Shutter-releasebutton
11.	Power switch

Fig 2 (12-18)

12.	Flash pup-up button
13.	Flash mode button
14.	Built-in microphone
15.	Flash sync terminal (cover)
16.	Ten-pin remote terminal (cover)
17.	Lens release button
18.	Focus-mode selector

Fig 3 (19-22)

19.	Sub-command dial
20.	AF-assist illuminator
21.	Depth-of-field preview button
22.	FN (FUNC.) Button

Fig 4 (23–32)

23.	Connector cover
24.	Playback button
25.	Delete button
26.	Viewfinder eyepiece
27.	MENU button
28.	Protect/Help Button (info – D300)
29.	Thumbnail/Playback zoom out btn.
30.	Playback zoom in button
31.	OK button
32.	Monitor

Fig 5 (33-46)

33.	Diopter adjustment control
34.	Metering selector
35.	AE-L/AF-L Button
36.	AF-ON button
37.	Main command dial
38.	Multi Selector
39.	Multi selector center button (D300S)
40.	Focus selector lock
41.	Memory card access lamp
42.	Memory card slot cover (D300S)
43.	Speaker
44.	AF-area mode selector
45.	Info button (D300S)

46.	Live view mode button (D300S)

Note: Special D300 information in Colors and Wording Legend

Figure 1. Top of camera (1–11)

Figure 2. Left front of camera (12–18)

Figure 3. Right front of camera (19–22)

Figure 4. Left back of camera (23–32)

Figure 5. Right back of camera (33–46)

Colors and Wording Legend

Throughout this book you will be presented with words displayed in two colors along with the use of italics. The two colors are blue and green, and are used as follows.

- The camera's physical features are listed in blue.
- Functions and settings viewed on an LCD screen are in green.
- Textual prompts given by the camera on a screen are in *Italics.*
- On select occasions, *Italics* or ***Bold Italics*** are used for special emphasis.

Here is an example of the colors and italics in use:

Press the Menu button to reach the Setup Menu and then scroll to the Format memory card option by pressing the down arrow on the Multi Selector. You will see a message reminding you, *All images on Memory card will be deleted. OK?* Select Yes and then press the OK button. ***Please make sure you've transferred all your images first!***

Special D300 Information

The Nikon D300S and D300 are physically different in a few places. The Info button, Memory card slot cover, and Multi selector center button work differently or have different locations. Below is a picture of the back of a D300, with the differences noted. The Multi Selector on the D300 does not have the newer style Multi selector center button (see Figure 5, number 39). However, it works the same way—by pressing on the middle of the Multi Selector with your thumb. In Figure 6 are the locations of the Info button, Multi selector center button, and Card slot cover latch. Use the latch to open the Memory card slot cover.

Figure 6. D300 control differences

Chapter 1. Basic Camera Setup

Apples – Courtesy of Neale Dyster (*Digitwized*)

Congratulations! You've purchased, or are about to purchase, Nikon's flagship DX format camera—the Nikon D300 or D300S.

While no digital camera is inexpensive, the D300/D300S provides passionate photographers a genuine professional-level camera at an attractive price. It is weather and dust sealed with a magnesium-alloy body and frame and a rubberized coating that makes it strong and reliable for years of faithful service.

The 12+ megapixel imaging sensor and supporting Nikon Scene Recognition System allows you to take complete creative control of the scene in front of your lens. The camera has advanced firmware that does things like automatic chromatic aberration reduction and full color optimization via selectable Picture Controls so that you can create the best pictures you've ever made.

This book will explore your incredibly feature-rich camera in great detail, using everyday language. We'll cover virtually every button, dial, switch, and setting, giving you how, when, and why information so that you can become a master of your new, powerful imaging instrument. Your passion for excellent photography can be fully expressed with your new Nikon. Let's take control of it!

Since many people appreciate additional reference points for research, I've included appropriate Nikon User's Manual page references under the sub-headings throughout the book. Using these manual references is *entirely optional* and not necessary for complete understanding of your camera. However, many people, myself included, enjoy having a different perspective on things they are learning.

As you study your new camera, keep the Nikon User's Manual handy. My addition of the manual's page reference numbers should provide some extra clarity, if you need it. If you still have difficulty understanding a specific function or setting, please feel free to get in touch with me by using the contact link at www.YoungImaging.com. I'll do my best to help guide you as you fully master your new Nikon D300 or D300S.

D300S and D300 Reference Material

The two cameras covered in this book are very similar. However, there are distinct differences in certain areas. For instance, both cameras have somewhat different button locations, completely different Memory card slot cover styles,

dissimilar features on the Release mode dial, and distinctive cable connection points under the Connector cover.

Since we'll be using button, dial, and switch names all over this book, it's important that you learn their locations on the camera body. The **Camera Body Reference** section at the beginning of this book contains large pictures showing the locations and names of the external camera controls as well as other important technical information. Please find this section and look through it. Then come back here to continue.

Leave a bookmark in the section pertaining to your camera so that you'll have an easy reference point for control locations. Throughout this book, I'll say things like "Use the Thumbnail/playback zoom out button to change the number of images viewed on the Monitor." You'll need to know where to find the Thumbnail/playback zoom out button and the Monitor. The **Camera Body Reference** section provides that information and should be your guide.

I won't constantly refer to the reference section, as I'd have to do so literally hundreds of times and it would quickly get tiring to read the extra, unnecessary text. Instead, I'll use Nikon's official name for the controls, as found in the user's manual. If you're unsure of a button, dial, or switch location, simply use the reference images specific to your camera to find its location. I may slip in a reminder of this from time to time.

To keep from having to type D300 or D300S, or even D300/D300S, and wasting book space, I'll refer to both cameras as D300(S) unless I am talking about a feature specific to one camera type.

First-Time DSLR Users

Surprisingly, quite a few brand-new digital single lens reflex (DSLR) users are buying these advanced cameras. Even new users appreciate the robust high quality of the D300(S).

If you are a first-time DSLR user, please download the document titled **Initial Hardware Considerations**, from our downloadable resources web page. The web address is **http://rockynook.com/NikonD300S**. This document contains some very basic information for first-time users, such as battery insertion and lens attachment steps. If you've used other Nikon DSLRs in the past, I'm sure you know how to work with those items, so I didn't want to make you read through very basic information that you may not need. However, new users need to know how to charge and insert the battery, format and insert a memory card, install a lens for the first time, and

understand the controls on a lens. The downloadable resources provide that information in a graphical and easily understandable way.

The upcoming material is best read with camera in hand, ready for configuration. There are literally hundreds of things to configure on this professional-level camera. In this chapter, I'll give a new user of the D300(S) camera a place to start. Later, as you progress through this book, we'll look at all the buttons, switches, dials, and menu settings in detail.

Each menu in the camera has its own chapter or section. Plus, there is additional information on how to "put it all together" in chapters like **Chapter 9**; **Chapter 10**; **Chapter 11**; and **Chapter 12**. And, since the D300S has the new D-Movie mode, we'll cover that in its own chapter, called **Chapter 8**.

Shoot Now Camera Configuration

This chapter is devoted to the first-time use of the camera. There are certain settings that must be set up immediately and others that should be configured as soon as possible. I'm not going to go into detail on all possible settings in this chapter. That is reserved for the individual chapters covering the various menus and functions.

Instead, in list form, I'll refer you chapter sections showing the screens and menus used to set each function that should be configured *before* using the camera for the first time. Later chapters will cover virtually all camera settings.

Accessing the Camera Menus

To access the various configurable menus in the D300(S), you'll use the MENU button found on the back of the camera at the top left of the Monitor. Please remember the location of this button since it will be used constantly in this book. I'll not mention that you need to press the MENU button to get into the camera menus again. Otherwise, I would be repeating something over and over, unnecessarily.

There are six primary menu systems found in the camera, and this book has a chapter devoted to each one. Let's take a brief look at the opening screens of the six menus, shown in Figure 1-1.

You get to these six menus by pressing the MENU button and scrolling up or down with the Multi Selector. A selector bar with tiny icons appears on the left side of the Monitor when

you press the MENU button. You can see it at the left of each of the menus in Figure 1-1. As you scroll up or down in the selector bar, you'll see each menu appear—one at a time—to the right of the bar. The name at the top of the menu will help you figure out which one you're currently using.

Figure 1-1. Six primary camera menus (optional Recent Settings menu not shown)

The six menus that are found under the D300(S) menu system are, in order, as follows (see Figure 1-1):

1. Playback Menu
2. Shooting Menu
3. Custom Setting Menu
4. Setup Menu
5. Retouch Menu
6. My Menu or Recent Settings

Notice that the sixth menu called My Menu can be toggled with an alternate menu called Recent Settings, a seventh menu. These two menus can't be active at the same time.

The menu called My Menu is much more functional for most people, so I showed it in the list of menus in Figure 1-1. The chapter titled **Chapter 7** covers both of them in detail so you can choose which you want to appear most of the time on your camera. My Menu allows you to add the most-used menu items from any of the other menus to your own personal menu, while Recent Settings shows you the latest 20 menu items you've changed.

Following is a list of functions that you may want to configure first. These set up the basic parameters for camera usage. Each function listed is covered in great detail on the page number listed at the end of the reference. Please refer to the listed function and its page number, then turn there and fully configure the function. Afterward, return here and move on to the next function. When you are done, your camera will be ready for use. Place a bookmark here since you'll be referring back to this chapter for each configuration item:

Camera Functions for Initial Configuration

Setup Menu

- Time zone and date (D300S) or World time (D300) – See Time Zone and Date or World Time
- Format memory card – See Format Memory Card
- LCD brightness – See LCD Brightness
- Language – See Language
- Auto image rotation – See Auto Image Rotation
- Copyright information (D300S only) – See Copyright Information (D300S Only)

Shooting Menu

- Primary slot selection (D300S Only) – See Primary Slot Selection (D300S Only)
- Secondary slot function (D300S Only) – See Secondary Slot Function (D300S Only)
- Image quality – See Image Quality
- Image size – See Image Size
- JPEG compression – See JPEG Compression
- White balance – See White Balance

- Set Picture Control – See Set Picture Control
- Color space – See Color Space
- Active D-Lighting – See Active D-Lighting
- ISO sensitivity settings – See ISO Sensitivity Settings

Playback Menu

- Image review – See Image Review
- Rotate tall – See Rotate Tall

Custom Setting Menu

- AF-C priority selection – See AF-C Priority Selection
- AF-S priority selection – See AF-S Priority Selection
- Dynamic AF area – See Dynamic AF Area
- Viewfinder grid display – See Viewfinder Grid Display
- File number sequence – See File Number Sequence

Two Additional Functions

In addition to the camera functions listed above, it is important to understand and configure the two following functions. The D300(S) has four Shooting menu banks and four Custom settings banks. These individual banks can be used to completely change how the camera works, by simply switching banks.

The configuration you have just completed, by using the functions list above, was installed into only one of each of these two bank types. You can do this same configuration in all four Shooting menu banks and Custom setting banks. When you are done, you can give each one a different name and switch between them at will. This allows you to configure your camera for different styles of shooting and switch between each style in a few seconds. Full descriptions are found in the following chapter locations:

- Shooting menu bank (on the Shooting Menu) – See Shooting Menu Bank
- Custom setting bank (on the Custom Setting Menu) – See Renaming a Custom Setting Bank

My Personal Camera Setting Recommendations

All through the book I offer my own personal recommendations as to settings and how to use them. Look for the paragraph(s) starting with **My Recommendation** at the end of most chapter sections. These are suggestions based upon my own personal shooting style and experience with Nikon cameras. You may eventually decide to configure things in a different way, according to your own needs and style. However, these recommendations are good starting points while you become familiar with the camera.

Figure 1-2. 1982 World's Fair site in 2010. Shown are the Sunsphere and Ampitheater. Knoxville, TN USA. Nikon

D300 and a Sigma 18-50mm f/2.8 EX HSM lens. F8 at 1/125s, 200 ISO, Matrix meter.

My Conclusions

This chapter's primary concern has been the initial setup and basic configuration of your new camera. The next several chapters will look into each menu and setting in the camera in a detailed way. The final chapters will cover the application of those settings as we consider ways to use the camera most effectively.

The Nikon D300(S) is a professional camera in all respects. It is designed so that you can take it places that lesser cameras shouldn't go. The imaging capability in this complex but powerful DSLR is one that could only be dreamed of a few years ago. Take the time to work through this book with your camera in hand, and you'll come out in the end as a master of your new Nikon D300(S).

Additional Downloadable Resources Website

To keep this book at a managable size which is easy to carry with you, we a re providing a downloadable resources web page located at this address:

- **http://rockynook.com/NikonD300S**

Here you'll find additional chapter sections that provide added information on camera operation and even a few photography basics.

Chapter 2. Playback Menu

Red-Tailed Hawk – Courtesy of Doug Sipes (*Dsipes*)

In Chapter 1 you configured your camera for picture-taking your way. This chapter, and the next several chapters, will consider the camera's menu systems. The D300(S) has seven

menus, with literally hundreds of configuration options. We'll examine each setting on each menu, starting now.

First is the Playback Menu, which we'll consider in detail in this chapter. Since this menu controls how the camera's Monitor displays images, you'll need to learn how to use it well. You'll be taking thousands of pictures and will view most of them on the Monitor.

By now, you may have quite a few pictures on your camera's memory card. The Playback Menu has everything you need to control your camera's image playback, copying, and printing—concentrated in 10 selections in the D300S and 9 in the D300. They are as follows:

- **Delete –** Allows you to delete all or selected images from your camera's memory card(s).
- **Playback folder –** Allows you to set which image folders your camera will display if you have multiple folders on the camera's memory card(s).
- **Hide image –** Lets you conceal images so that they won't display on the camera's Monitor.
- **Display mode –** Controls how many informational screens the camera will display for each image.
- **Copy images (D300S only) –** Gives you functions to copy images between the two memory cards on the Nikon D300S.
- **Image review –** Turns the camera's post-shot automatic image review on or off.
- **After delete –** Determines which image is displayed next when you delete an image from the memory card.

- **Rotate tall –** Allows you to choose whether portrait-orientation images (verticals) display in an upright position or lying on their side on the horizontal Monitor.
- **Slide show –** Allows you to display all the images on your camera's memory card(s) in a sequential display, like the slide shows of olden days (pre-2002). No projector required.
- **Print set (DPOF) –** Lets you print your images directly from a PictBridge-compatible printer without using a computer—either by using Digital Print Order Format (DPOF) directly from a memory card, or by connecting a USB cable to the camera. (Available in our free download section.)

Now, let's examine each of these settings in detail, with full explanations on how, why, and when to configure each item.

Technical LCD Monitor Information!

The D300(S) has a Monitor screen with enough resolution, size, and viewing angle to really enjoy using it for previewing images. It has full VGA resolution (640×480), based on a 920,000 dot liquid crystal display (LCD). If you read anywhere that the LCD Monitor screen has 920,000 *pixels* of resolution—or is higher than VGA—the writer is uninformed. Nikon lists the resolution as 920,000 *dots*, not pixels.

Don't let the numbers boggle your mind. The bottom line is that this 3-inch screen has amazing clarity for your image previewing needs. You can zoom for review up to

27x for Large (L) images, 20x for Medium (M), and 13x for Small (S). That's zooming in to "pixel peeping" levels.

Now, if you want to get "technical"—here's the extra geek stuff.

Each "dot" on the Monitor screen has three color segments, like on a computer monitor or TV screen—one each for red, green, and blue (RGB) colors. Since only one color segment at a time is used, the screen does not have 920,000 *pixels* of resolution. Instead, since it is only using one third of each dot by turning one of its three segments—red, green, or blue—it's limited to an actual *pixel* resolution of 307,200 pixels.

In other words, there are 920,000 dots, with each dot divided into three segments. The three segments together equate to one pixel, so the monitor is limited to ⅓ of 920,000 dots, or 307,200 pixels of real image resolution. The VGA standard has 640×480 pixels, and since 640 × 480 = 307,200, the Monitor screen on your D300(S) has VGA resolution.

Delete

(User's Manual: D300S page 221; D300 page 248)

The Delete function allows you to selectively delete individual images from a group of images in one or more folders on your camera's memory card. It also allows you to clear all folders of images, without deleting the folders. This is sort of like a card format that only affects images. If you

have protected or hidden images, this function *will not* delete them.

The Delete menu selection has a close relationship with the next menu selection, named Playback folder. The deletion of images is affected by how you have Playback folder configured. If you have Playback folder set to Current, the camera will show you only the images found in your current playback folder. If you have it set to All, the D300(S) will display all the images it can find in all the folders on your camera's memory card(s).

There are two selections on the Delete screen—Selected and All:

Selected – Figure 2-1 shows the screens you'll use to control the Delete function for Selected images.

Notice in image 3 of Figure 2-1 that you have a list of images with their folder numbers and image numbers in the lower-right corner.

Figure 2-1. Delete selected images

The numbers look like 102-1, which stands for folder number 102, image number 1. I have three folders showing in image 3: 100, 101, and 102.

The number of images shown will vary according to how you configure the Play back folder settings (see the next section of this chapter).

Here are the steps to delete Selected images:

1. To delete one or more images, you'll need to locate and mark each of them using the Multi Selector. The D300S uses the small button in the middle of the Multi Selector to select an image, while the D300 requires that you press the entire Multi Selector without tilting it off

center. On the D300, I've found it best to use the pad of your thumb over the whole Multi Selector instead of sticking the end of your thumb into the middle of it. You'll have to press the entire Multi Selector smoothly.

2. Once you've marked an image for deletion, a small garbage can symbol will appear in the top-right corner of the image (see Figure 2-1, image 3, red arrow). Select however many images you want to throw away.

3. Once you have selected the images you want to delete, press the OK button.

4. A screen like the one shown in Figure 2-1, image 4, will appear, asking you to validate the deletion of the number of images you have selected. To delete them, select Yes and press the OK button. To cancel, select No and press the OK button, or just press the Menu button.

Now, let's examine how to use the All setting (see Figure 2-2 or Figure 2-3). Be a little more careful about this particular function!

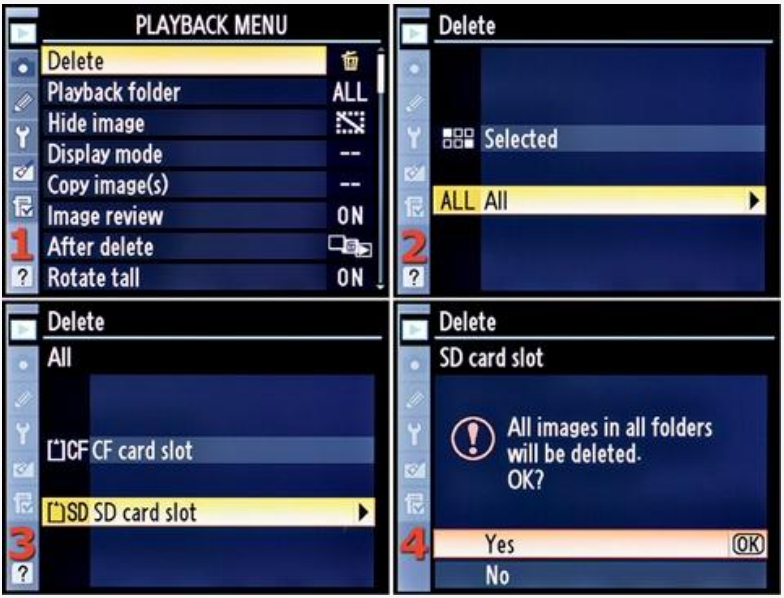


Figure 2-2. D300S Delete all images

Figure 2-3. D300 Delete all images

All –

This is like a card format, except that it will not delete existing folders, only images. As mentioned previously, it will not delete protected or hidden images. This is a quick way to "format" your card while maintaining a favorite folder structure.

Here are the steps to delete All images on the current memory card:

1. To delete all images in all folders, simply select All, as shown in Figure 2-2 for the D300S or 1B for the D300.
2. The D300S adds an additional screen at this point since it has two memory cards (see Figure 2-2, image 3). On the D300S, you must select either the SD or CF memory card slot for image deletion. The D300 is simpler since it only has one memory card, so there is one less screen to step through, as shown in Figure 2-3.
3. Select Yes from the next screen with the big red exclamation point and the dire warning that reads: *All images in all folders will be deleted. OK?* See the last screen in Figure 2-2 (D300S) or 1B (D300).
4. Press the OK button. A final screen informing you that the dire deed has been Done will pop up briefly.

Being the paranoid type, I tested this well and found that the D300(S) will not delete protected and hidden images. Plus, it will keep any folders you have created. However, if you are a worrier, you may want to transfer the images before deleting them.

My Recommendation: I don't use the All function often since I don't create special folders for each type of image. If you maintain a series of folders on your memory card(s), you may enjoy using the All function. Most of the time, I just use Selected and remove particular images. Any other time I want to clear the card, I use the Format memory card function on the Setup Menu or hold down the two buttons with the red Format label next to them. We'll discuss formatting the

memory card in the chapter titled **Chapter 5**, under the heading called Format Memory Card.

Another way I'll rid myself of images I don't want is to view them on the Monitor by pressing the Playback button and then press the Delete button on the top left of the camera back (marked by a garbage can symbol). You have several ways to rid yourself of unwanted images with the D300(S).

Playback Folder

(User's Manual: D300S page 245; D300 page 249)

If you regularly use your memory card(s) in multiple cameras like I do and sometimes forget to transfer images, adjusting the Playback folder setting is a good idea.

I use a D300S and a D2X on a fairly regular basis. Often, I'll grab an 8- or 16-gigabyte card out of one camera and stick it in another for a few shots. Later, if I'm not careful, I'll transfer the images from one camera and forget that I have one or more folders on the CF card created by the other camera. It's usually only after I have pressed the format buttons that I remember the D2X images on the memory card. The camera comes to my rescue with its Playback folder > All function.

Figure 2-4. Playback folder screens

Let's look at how the Playback folder function works by first looking at the screens in Figure 2-4.

Here are the three selections you can choose from (see Figure 2-4):

- D300S (D300S) or ND300 (D300)
- All
- Current

D300S or ND300 –
The D300S and D300 use slightly different names for the default playback folder. The D300S uses a folder called D300S, while the D300 uses a folder called ND300. Figure 2-4 shows D300S screens only. If you leave your camera set to this default mode, the image playback will show you images in all the folders that have been created by the D300(S) only. If there are folders from other cameras on the memory card, those images will not appear during playback. You may not even realize they are on the memory card. **Note**: When viewed on your computer, the memory card's full default folder name will be 100D300S or 100ND300. You can change the default folder number to a new one with the Shooting Menu > Active folder setting. We'll discuss this more in the chapter called **Chapter 3**.

All – This maximum flexibility setting has saved my buns several times—when I thought to check my camera for images before I formatted the card and found that I had other images on the card besides D300(S) images. During playback, the camera will display images from other folders you've created or other Nikons you've used with the current memory card. Each camera creates its own unique folders. The D300(S) intelligently displays its own images, as well as any other Nikon images on the card.

Current – This is the most limited playback mode available. Whatever folder your camera is using currently will be displayed during playback. No other images or folders will be displayed. You might have a folder named 999D300S, or 555ND300, for example, and be using it for landscape images. If you use Current, only that folder's images will display when you press the Playback button.

My Recommendation: In my opinion, using anything except All leaves one open for lost images. If you don't have any other Nikon cameras around, this may not be a critical issue. However, if you're like me, you'll have a series of older Nikons around and you may be switching memory cards between them. If there's an image on any of my memory cards, I want to see it and know it's there. Until I started using the All setting, I was regularly formatting cards with forgotten images on them. From my pain comes a strong recommendation—use All!

Hide Image

(User's Manual: D300S page 245; D300 page 249)

If you sometimes take images that wouldn't be appropriate for others to view, this setting is for you. You can hide one or many images, and once hidden, they cannot be viewed on the camera's Monitor in the normal way. The only way hidden images can be viewed in-camera is by using the Hide image selection screen (see Figure 2-5, image 3).

There are two selections in this menu item:

- Select/Set
- Deselect all?

Select/set –
This selection allows you to hide one or many images. You'll see the images as shown in Figure 2-5, image 3.

To hide an image with Select/Set, follow these steps (see Figure 2-5):

1. Scroll to each of the image(s) that you want to hide.

Figure 2-5. Hide image screens – Select/Set options

2. Press the Multi selector center button on the D300S or the center of the Multi Selector on the D300. This selects an image for hiding and places a small symbol in the upper-right corner of the image thumbnail (see Figure 2-5, image 3, red arrow). The hide symbol looks like a slash with a dotted box around it.

3. Press the OK button to hide the selected image(s). The camera will display a screen that says *Done*. Now the hidden image(s) will not show up on the Monitor during normal picture playback. However, it will still show up in the Hide image selection screen.

The number of images reported does not change when you hide images. If you have 50 images on the card and you hide 10, the camera still displays 50 as the number of images on

the card. A clever person could probably figure out that there are hidden images—if they are watching the number of images as they scroll through the viewable ones. If you hide all the images on the card and then try to view images, the D300(S) will tersely inform you, *All images are hidden.*

> Hide Images Obeys the Playback Folder Setting
>
> The display of images to select from for hiding purposes obeys the Playback Menu > Playback folder selection that we considered previously. You can only hide images you can see in the Hide images selection screen. If you don't have All selected for Playback Menu > Playback folder, you will not see all images that may be on the card. If you regularly hide images you've taken, you may want to leave your Playback folder setting set to All. That way, all the images on the card(s) will show on the Hide images screen and let you select any of them to hide.

You can also use these menus to unhide one or many images by reversing the process just described. As you scroll through the images, you can reselect them with the Multi Selector, then press OK to unhide them.

***Deselect all?* –** This is a much simpler way to unhide all the images on the card at once. As shown in Figure 2-6, image 3, the screen will display the message *Reveal all hidden images?* Select Yes and press OK. All hidden images on the card will be then be viewable. As the images are being revealed, the camera's Monitor will display the message *Marking removed from all images.*

Figure 2-6. Hide image screens – Deselect All? option

Note: If you unhide images that are both hidden and protected, the protection is also removed at the same time. You protect/unprotect an image by displaying it on the Monitor and then pressing the Protect button, which is marked by a key symbol on the back of the camera (next to the question mark).

Display Mode

(User's Manual: D300S page 247; D300 page 250)

The Display mode selection allows you to customize how the D300(S) displays all those histogram and data screens for each image. If you want to see a lot of information on each image, you can select it here. Or, if you would rather take a minimalist approach to image information, turn off some of the screens.

If you turn off certain screens, the camera still records the information for each image, such as lens used, shutter speed, and aperture. However, with no data screens selected, you'll see only two screens. One is the main image view, and the other is a summary screen with a luminance histogram and basic shooting information. I have not found a way to turn this summary screen off. You get to the screens by using the Multi Selector to scroll vertically. I leave my camera set so that I can scroll through my images by pressing left or right on the Multi Selector. Then I can scroll through the data screens by scrolling up or down with the Multi Selector.

There are some textual differences between the D300S and D300 Display mode screens. The D300S takes Highlights out of the Basic photo info section and places it under Detailed photo info.

Here are the selections found in this menu item and a description of what each does:

Figure 2-7. D300S Display mode menu screens

D300S Display mode screens (see Figure 2-7):

- Basic photo info
  - Focus point
- Detailed photo info
  - Highlights
  - RGB histogram
  - Data

Figure 2-8. D300 Display mode menu screens

D300 Display mode screens (see Figure 2-8):

- Basic photo info
  - Highlights

    - Focus point
- Detailed photo info
    - RGB histogram
    - Data

When you modify these selections, be sure to scroll up to the word Done and press the OK button to save your setting. I keep forgetting to do this when I make changes (see Figure 2-7 or Figure 2-8, image 3).

Now, let's look at what each of these selections accomplishes (see Figure 2-9-Figure 2-12). Remember that there will be a slight difference in setting locations since the D300S and D300 place them in a different arrangement. I am following the D300S order since the camera is newer, although I've provided screens for both cameras.

Focus point –
If you are curious about which AF sensor(s) is focused on your subject during an exposure, this mode makes it easy to see. As shown in Figure 2-9, if you are using Single-point AF or Dynamic-area AF, you'll see a single red AF indicator where the camera was focused when you took the picture. If you are using Auto-area AF, you'll see all the AF points that were providing autofocus in your image. This is a useful function for reviewing how the camera's AF system performs in different imaging situations.

Figure 2-9. Display mode screens – Focus point option

Highlights – If you put a check mark next to the Highlights selection, as shown in Figure 2-10, you will turn on what I call the "blinky" mode of the camera. You'll see the word Highlights at the bottom left of the image (see Figure 2-10, red arrow). When any area of the image is overexposed, that area will blink an alternating white and black. This is a warning that certain areas of the image are overexposed and have lost detail. You will need to use exposure compensation or manually control the camera to contain the exposure within the dynamic range of the camera's sensor.

Figure 2-10. Display mode screens – Highlights option

When you have Highlights enabled and you see a blinking white-to-black-to-white area in an image on the Monitor, it means that area of the image has lost all detail, or has "blown out". In Figure 2-11 you'll see a red arrow pointing to where the sky is completely blown out to white. The two screens show the same image to represent both sides of the white-to-black Highlights blink.

Figure 2-11. Highlights "blinky" mode showing overexposed sky

If you examine the histogram for an overexposed image, you'll see that it's cut off, or "clipped", on the right side. Current software cannot usually recover any image data from the blown-out sections. The exposure has exceeded the range of the sensor
and has become completely overexposed in the blinking area. We'll discuss how to deal with images that have light ranges which exceed the sensor's recording capacity in the chapter called **Chapter 9**.

Highlights mode is a nice way to allow your camera to warn you when you have surpassed what its sensor can capture, leaving portions of the image overexposed.

RGB histogram – I like this feature since it allows me to view not just a basic luminance (brightness) histogram like some cameras, but all three color (chrominance) histograms and a luminance histogram in one screen (see Figure 2-12). The D300S stacks the four histograms all on the right side of the screen, with the luminance on top (white histogram) and the RGB color histograms underneath. The D300 displays the RGB histograms on the right side and places the luminance histogram under the small picture. Figure 2-12 shows the D300S screen.

Figure 2-12. Display mode screens – RGB histogram option

Each color channel—red, green, and blue—is displayed with its own small histogram. This is quite useful since it is possible to overexpose, or "blow out", only one color channel, as happens often with the red channel in my case. The luminance (white) histogram is very similar to the green channel histogram since green is the most common color around.

Data – This setting will give you up to four additional image data screens to scroll through.

Figure 2-13. Display mode screens – Data option

The data found on these screens is shown in Figure 2-13 and includes the following information:

Image Data, Screen 1

- Light meter in use (Matrix, Spot, or Averaging), Shutter speed, and Aperture
- Exposure mode (P, S, A, M) and ISO
- Exposure compensation value
- Lens focal length
- Lens overview (e.g., 16-85mm f/3.5 – 4.5)
- AF/VR
- Flash mode and Compensation
- Commander mode info (if used)

Image Data, Screen 2

- White balance
- Color space (sRGB, AdobeRGB)
- Picture control detail (e.g., Neutral, Standard, Vivid), Base, Sharpening, Contrast, Brightness, Saturation, Hue

Image Data, Screen 3

- Noise reduction
- Active D-Lighting (Off, Low, Normal, High)
- Retouching
- Comment

Image Data, Screen 4 (D300S Only)

- Artist
- Copyright

Figure 2-14. Display mode screens – main and summary

If you took a picture with a GPS unit attached and active on your D300(S), then you'll have an additional screen available—even if you don't have Data selected. Figure 2-13 shows this screen in the last image, labeled GPS in red. The

GPS data screen shows Latitude, Longitude, Altitude, and Time (UTC).

That's a lot of screens to scroll through, but they provide a great deal of information on the image. Look how far we've come from the days of writing date information on the lower right of the image (permanently marking it), or between the frames on the pro-level cameras.

Including the two standard display screens, there are eight screens just brimming with data on the D300S and seven on the D300—plus the GPS screen. Or you
can get by with the main image display and one summary display (see Figure 2-14). The summary display is a condensation of the most important shooting information. It even includes a small luminance histogram.

My Recommendation: Some people like minimal data to scroll through and others like a lot. I generally leave my camera set to use only the Highlights (Figure 2-11) and RGB histogram (Figure 2-12) screens. Those two screens, along with the main and summary screens (Figure 2-14), give me all the information I normally need. If you're a data-oriented person, Nikon is happy to oblige you. Turn all these data screens on and examine how each shot's settings were configured. This sure beats the old days of writing data directly on the film image or between the frames, doesn't it?

Copy Images (D300S Only)

(User's Manual: D300S page 248)

The D300S provides a means to Copy image(s) between the camera's SD and CF card slots. This doesn't apply to the D300 since it only has one card. If you've been shooting and suddenly want a backup on the other card, want to hand off images on one of your cards to someone else, or only have a card reader for one of the card formats, you can use this function to copy images between the two card types.

This convenient functionality has several steps to accomplish the deed. First, you'll select a source card—if both cards have images—and the source folder, then the images to move, and then the folder that you want to place them in on the other card. Figure 2-15 shows the screens for the Copy images function:

Figure 2-15. Copy images – Selecting a source card

When I first opened up the menu shown in Figure 2-15, I found only one item available—the Select image(s) choice. The rest were grayed out. I was quite puzzled at first, and then figured out why. There are two reasons Select image(s) may be the only option available:

1. There are images on only one of the cards. Think about this for a moment. If only one card has images on it, you have no real reason to choose a source card, do you? Only one card has images, so it has to be the source. This is the most likely scenario.

2. The SD card's write-lock switch is in the on position. This usually happens while inserting the SD card into a card reader on a slight angle, or even by angling it when putting it into the camera. The switch is on the side and sometimes gets moved from off to on.

   You'll notice this problem in other ways since the camera cannot write to the SD card with write-lock set to on. You will see a CHA error on the Control panel if you try to format the card, and a blinking card slot icon will appear on the Control panel and Monitor. Interestingly, it may take a while to realize that you've accidentally moved the lock switch to the on position. The camera is smart enough to write to the CF card when it can't access the SD card, so you may be happily snapping images, thinking they are flowing to the SD card when they are actually being sent to the CF card.

   One thing that makes it harder to realize that the lock switch is enabled is that the camera will continue displaying images found on the SD card if you have Playback folder set to All in the Playback Menu. The camera can still read the card and display images, it just can't write to a locked SD card. Fortunately, the CF card has no lock.

I'm going to present this information step-by-step as if you have all choices available. If you only have images on one

card, you can skip the source card selection step. Refer to Figure 2-15 (or the camera's actual menu) and follow these steps to select a source card:

1. Select Copy image(s) from the Playback Menu.
2. Choose Select source from the Copy image(s) menu.
3. Choose one of the card slots. I use the SD card as my primary card, so Figure 2-15 shows that I selected the SD card slot as the source. Note: You can use the Shooting Menu > Primary slot selection function to choose which card is the primary for your camera—SD or CF.
4. Press the OK button to lock in your choice.

Once you've chosen a source, it's time to select images to copy. It's a somewhat complex process to describe but fairly easy to use. The image selection choices were a little confusing to me at first. I was expecting a selection saying something like, "Select images to copy". However, you are only given these three options:

- Deselect all
- Select all images
- Select protected images

What if you want to copy only one image, or five? All three ways listed allow you to choose images for copying, even though it seems a little counter-intuitive at first.

Figure 2-16. Copy image(s) – Selecting a source folder

Let's examine the steps for choosing images to copy, starting with choosing a folder (see Figure 2-16):

1. Select Copy image(s) from the Playback Menu.
2. Choose Select image(s) from the Copy image(s) screen (see Figure 2-16, image 1).
3. Choose the folder that contains the images you want to copy (see Figure 2-16, image 2). My D300S happens to be using the default folder, 100D300S. If you are using a D300, it may be 100ND300 instead. Or you might have more folders with different names.
4. Now you have three choices to select from, and each has a slightly different way of doing things. In this step (#4), you should select only one of the three choices listed for each copy operation. Your choices are Deselect all, Select all images, or Select protected images. The description for each selection is listed between steps 4 and 5. Choose one, and examine the corresponding FIG for visual instructions:

Deselect all **(see Figure 2-17) –** Choose Deselect all from the Default image selection menu and then scroll to the right.

Deselect all opens a list of images, none of which have been selected.

Figure 2-17. Deselect all function

You'll need to scroll around and select images one at a time. Mark an image for copying by pressing the Multi selector center button on the D300S or the center of the Multi Selector on the D300.

When you select an image, you'll see a small white check mark surrounded by a black box appear in the top-right corner of the image thumbnail. Figure 2-17, image 2 shows only one picture selected, number 100-20—the only one with a check mark. Now, move on to step 5.

Select all images **(see Figure 2-18) –**
Choose Select all images from the Default image selection menu, and then scroll to the right.

Figure 2-18. Select all images function

The Select all images screen will now show, with all images selected.

If you want to copy all the images, move on to step 5. If you want to deselect a few of them before copying, scroll to an image and press the Multi selector center button on the D300S or the center of the Multi Selector on the D300. This action will remove the check mark from the image thumbnail. Once you've unchecked the images you don't want to copy, move on to step 5.

Select protected images **(see Figure 2-19) –** Choose Select protected images from the Default image selection menu, and then scroll to the right.

Figure 2-19. Select protected images function

If you've previously used the Protect button to mark images as protected, they'll show up with a little key symbol in the list of images and will already be checked for copying.

Figure 2-19, image 2 shows the only image selected (number 100-89). Now, move on to step 5. (**Note**: The Protect button is at the left top of the Monitor with a key symbol on it and a question mark above it.)

1. Once you've selected all the images you want to copy, press the OK button and the camera will switch back to the Copy images(s) menu. Now it's time to select a destination folder into which you'll copy the images.

2. Choose Select destination folder from the Copy image(s) screen and scroll to the right (see Figure 2-20). You'll be presented with two choices, Select folder by number or Select folder from list (see Figure 2-21 and Figure 2-22).

Figure 2-20. Select destination

Select folder by number **(see Figure 2-21) –**
Choose Select folder by number from the Select destination folder menu and scroll to the right. The next screen will show a folder number that can be changed to any number between 100 and 999. If you select a number for a folder that exists on the destination card, the images will be copied into that folder. If a folder by that number does not exist, it will be created, and the source images will be copied into the new destination folder. Now move on to step 7.

Figure 2-21. Select folder by number

Select folder from list **(see Figure 2-22) –** If there are no existing folders on the destination memory card, this selection will be grayed out. Obviously, you can't copy images to a folder that doesn't exist. If this selection is grayed out, use Select folder by number to create a new folder. If it's not grayed out, choose Select folder from list and scroll to the right. The next screen will show you a list of folders. My list in Figure 2-22, image 2 has only one folder in it, 101D300S. Once you've selected the destination folder, move on to step 7.

Figure 2-22. Select folder from list

1. Now it's finally time to copy some images. We've selected a source card and folder, some images, and a destination folder. Notice that you don't have to select a destination memory card. Since we've already selected a source card, the other card automatically becomes the destination. The D300S does not support copying images to the same memory card, only between the two cards.

All that's left is selecting Copy image(s)? and scrolling to the right (see Figure 2-23).

Figure 2-23. Copying images

2. Figure 2-23 show the screens for steps 7 and 8. Once you've selected Copy image(s)?, you'll see a screen asking for verification. Mine says *Copy? 112 images* (see Figure 2-23, image 2). Select Yes and press the OK button. Figure 2-23, images 2 and 3 show that I have selected Yes and that the camera is copying 112 pictures from the source card to the destination memory card. Notice how the Copying screen shows the progress of the copy action with a green progress bar (see Figure 2-23, image 3). This will take several minutes to complete if you are copying a large number of images.

3. Once the copying is finished, you will see a small white box that says, *Copy complete.* You must press the OK button to return to the Copy image(s) screen. That completes the process.

There's one more screen that I want you to see, in case you try to copy images into a folder where they already exist. If an identical file name already exists in the destination folder, you may or may not want to overwrite it. The camera will warn you with the screen shown in Figure 2-24, helpfully showing you thumbnails of both images. You can view the two

thumbnails and decide whether or not you want to choose Replace existing image, Replace all, Skip, or Cancel.

Figure 2-24. File already exists

Image Review

(User's Manual: D300S page 251; D300 page 251)

Image review does exactly what it says; it shows you an image you've just taken on your camera's Monitor. With this function turned On, you'll see each picture you take just after you take it. You can "review" the image for quality and usefulness.

With Image review set to Off, you won't see each picture unless you press the Playback button afterward. This saves battery life. However, the camera's battery is long-lived since the D300(S) does not use a lot of power. If you prefer to review, or "chimp", each image after you take it, then you'll need to set this feature to On.

Figure 2-25. Image review screens

You can control how long each image is displayed on the Monitor before it shuts off by adjusting Custom setting C4 – Monitor off delay > Image review. This custom Image review time out can be adjusted to display pictures from 4 seconds to

10 minutes. We'll discuss this in more detail in the chapter titled **Chapter 4**.

There are two Image review settings, as shown in Figure 2-25:

- ***On*** **–** Shows a picture on the **Monitor** after each shutter release.
- ***Off*** **– Monitor** stays off when you take pictures.

Here are the steps to choose an Image review setting:

1. Choose Image review from the Playback Menu and scroll to the right.
2. Select On or Off from the Image review screen.
3. Press the OK button.

Most of us will turn this feature on right away—if it's off. Otherwise, the only way to view an image after taking it is to press the Playback button.

My Recommendation: Since the camera's battery lasts a long time, I leave Image review set to On. I am an unashamed image chimper (see sidebar) and always examine each image, if there's time. Photography is enjoyable, and one of the good things is the satisfaction one feels when a really nice image has been captured. However, when shooting sports and blasting through hundreds of shots per hour, there's not much time to view each image. It all boils down to how you shoot. If you aren't inclined to view your images as you take them, then it may be a good idea to set Image review to Off—merely to save battery life.

Are You a Chimper Too?

"Chimping" means reviewing images on the Monitor after each shot. I guess people think you look like a monkey if you review each image. Well, I do it anyway! Sometimes I even make monkey noises when I'm chimping my images. Try saying, "Oo, Oo, Oo, Ah, Ah, Ah" real fast when you're looking at an image and are happy with it. That's chimping with style, and why the word was invented.

After Delete

(User's Manual: D300S page 251; D300 page 251)

If you delete an image during playback, one of your other images will display on the camera's Monitor. The After delete function lets you select which image is displayed after you delete an image. The camera can display the next image in line or the previous image, or it can detect which direction you were scrolling—forward or backward—and let that determine which image shows after you delete another.

The three selections on the After delete menu are Show next, Show previous, and Continue as before (see Figure 2-26):

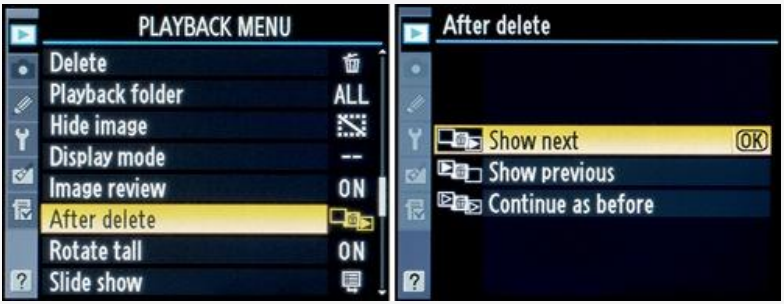


Figure 2-26. After delete screens

Show next – If you delete an image and it wasn't the last image on the memory card, the camera will display the next image on the Monitor. If you delete the last image on the card, the previous image will be displayed. Show next is the factory default behavior of the D300(S) since most people

would prefer to see the next picture. However, if you feel differently, one of the next two settings may appeal to you.

Show previous **–** If you delete the first image on the memory card, the camera will display the next image. If you delete an image somewhere in the middle or at the end of the memory card, the previous image will be displayed.

Continue as before **–** This weird little setting shows the flexibility of computerized camera technology in all its glory. If you are scrolling to the right (the order in which the images were taken) and decide to delete an image, the camera uses the Show next method listed above to display the next image. Since the computer in your D300(S) is aware of the direction in which you are scrolling, if you happen to be scrolling to the left (opposite from the order in which the images were taken) when you decide to delete a picture, the camera will use the Show previous method instead.

Here are the steps to choose an After delete setting (see Figure 2-26):

1. Choose After delete from the Playback Menu and scroll to the right.
2. Select one of the three settings from the After delete screen.
3. Press the OK button.

My Recommendation: When I delete an image, I'm not overly concerned about which image shows next—most of the time. However, certain styles of shooting and deleting rejects can certainly use this functionality.

For instance, some sports or wildlife shooters might like to move backwards through a long sequence of images, starting with the last image taken. They can then delete the images that are not usable in the sequence and the camera will immediately show the previous image for review. When they reach the first image in the sequence, the entire series is clean and ready to use.

I leave my camera set to Continue as before because it will then use the direction I was scrolling to decide which image to display after deleting one.

Why not use all the neat technology built into your camera?

Rotate Tall

(User's Manual: D300S page 251; D300 page 251)

When you shoot a portrait-orientation (vertical) image, with the camera turned sideways, the image can later be viewed as a horizontal image lying on its side or as a smaller, upright (tall) image on the camera's horizontal (wide) Monitor.

If you view the image immediately after taking it, the camera's software assumes that you are still holding the camera in the rotated position, and the image will be displayed correctly for that angle. Later, if you are reviewing the image with the camera's playback functionality and have Rotate tall set to On, the image will be displayed as an upright, vertical image that is smaller in size so that it will fit on the horizontal Monitor. You can zoom in to see sharpness detail, if needed.

Figure 2-27. Rotate tall screens

If you would rather the camera leave the image lying on its side in a horizontal view, forcing you to turn the camera 90 degrees to view it, you'll need to choose Off.

Here are the two available settings on the Rotate tall menu (see Figure 2-27):

- ***On*** – When you take a vertical image, the camera will rotate it so that you don't have to turn your camera to view it naturally during playback. This resizes the view of the image so that a vertical image fits in the horizontal frame of the **Monitor**. The image will be a bit smaller than normal. When you first view the image after taking it, the camera does not rotate it, since it assumes you are still holding the camera in a vertical orientation. It also senses which end of the camera is up—**Shutter-release button** up or down—and displays the image accordingly.
- ***Off*** – Vertical images are left in a horizontal direction, lying on their side; you'll need to turn the camera to view them as they were taken. This provides a slightly larger view of a portrait-orientation image.

Here are the three steps to choose a Rotate tall setting (see Figure 2-27):

1. Choose Rotate tall from the Playback Menu and scroll to the right.
2. Select On or Off from the Rotate tall screen.
3. Press the OK button.

There is another camera function that affects how this works. It's called Auto image rotation, under the Setup Menu. We'll

discuss this function more deeply in the chapter titled **Chapter 5**. Auto image rotation causes the camera to record the angle at which you are holding it as part of the image's metadata. Auto image rotation should be set to On so that an image will report how it should be displayed on the camera's Monitor and on your computer later.

In other words, Rotate tall and Auto image rotation work together to display your image in the correct orientation. Rotate tall gives you the choice of how the image is viewed per the orientation information it finds in the image's metadata. Setup Menu > Auto image rotation causes the camera to store how the image was taken so that it will know whether the image is a vertical or horizontal composition. It can then report this information to the Rotate tall function.

My Recommendation: I leave Rotate tall set to On. That way I can view a portrait-style image in its natural, vertical orientation without turning my camera. Be sure you understand the relationship between this function and Auto image rotation, which stores orientation data with the picture. I always set Rotate tall and Setup Menu > Auto image rotation to On. That lets me view images in the correct orientation on my camera's Monitor and later on my computer screen.

Slide Show

(User's Manual: D300S page 252; D300 page 252)

I used to do slide shows back in the old film days. I'd set up my screen, warm up my projector, load my slides, and watch everyone fall asleep by the hundredth slide. For that reason, I hadn't been using the Slide show functionality of my camera. However, all that changed recently.

One day I was up in the Great Smoky Mountains shooting beautiful waterfalls and cascades. The day was about over so I headed back into town with my lovely images and a desire for supper. I stopped in at the local buffet, got some food, set up my camera on one of those silver metal napkin boxes, dialed in a nice slide show, and started watching my own little show while I ate.

Before long, I was hearing "ooohs" and "aaahs" from people at the next table. Soon, there were several people standing behind me watching the show. I became an instant celebrity.

It was so popular that I think I'll go back this spring, and this time be prepared to charge admission.

Figure 2-28. Slide show screens

With this camera's big three-inch monitor
and VGA resolution, it should be a satisfying experience for any tourist. How much should I charge for the show?

As shown in Figure 2-28, the easy way to start a Slide show is to simply select the Playback Menu > Slide show setting, scroll right, and select Start. The slide show will commence immediately with a default display time of 2 seconds (2s) per image.

If you want to allow a little more time for each image to display, you'll need to change the Frame interval (display time) to a value of 3s, 5s, or 10s.

Figure 2-29. Slide show screens – Frame interval option

Figure 2-29 shows the menu screens used to make the change. Here are your choices:

- 2s – 2 seconds
- 3s – 3 seconds
- 5s – 5 seconds
- 10s – 10 seconds

To start the slide show, repeat the steps shown in Figure 2-28 after you've made the time change as shown in Figure 2-29. The slide show will now run at your new speed.

My Recommendation: I usually set the Frame interval to 3s. If the images are especially beautiful, I might set it to 5 seconds. I've found that 2s is not quite enough, and 5s or 10s may be too long. I wish we had a 4-second setting, but 3s seems to work well, most of the time.

There are several options that will affect how the images are displayed during the slide show. None of these show up in the camera menus; they are merely available through the camera's controls. Your options are as follows:

Skip back/Skip ahead – During the slide show, you can go back to the previous image for another viewing by simply pressing left on the Multi Selector. You can also see the next image with no delay by pressing right on the Multi Selector. This is just a quick way to skip images or review previous images without stopping the slide show.

View additional photo info – While the slide show is running, you can press up or down on the Multi Selector to view the additional data screens. This is dependent on how you have your camera's Display mode configured for Highlights, Focus Point, RGB histogram, and Data (see the section called Display Mode earlier in this chapter). If any of these screens are available, they can be used during the slide show.

Pause slide show –
During the slide show, you may want to **Pause**, change the **Frame interval** time, or even **Exit** the show. If you press the

OK button, the slide show is suspended and you are presented with the **Pause** screen, as shown in Figure 2-30.

Figure 2-30. Slide show screens – Pause option

Using the screens shown in Figure 2-30, you can select:

- ***Restart –*** Selecting OK, or scrolling to the right with the Multi Selector continues the slide show from the image following the one last viewed.
- ***Frame interval –*** Scrolling to the right with the Multi Selector takes you to the screen that allows you to change the display time to one of four values. You can choose 2s, 3s, 5s, or 10s. After choosing the new Frame interval value, you'll have to select Restart to continue the slide show where you left off.
- ***Exit –*** This does what it says—exits the slide show.

Exit to the Playback Menu – If you want to quickly exit the slide show, simply press the MENU button, and you'll jump directly back to the top of the Playback Menu, with no items selected.

Exit to playback mode – By pressing the Playback button (right arrow key with a rectangle around it, on the top rear left of the camera), you'll stop the slide show and change to a

normal full-frame or thumbnail view of the last image seen in the show. This exits the show on the last image viewed.

Exit to shooting mode – Pressing the Shutter-release button halfway down stops the slide show. The camera is now in shooting mode, meaning that it is ready to take some pictures.

These days, instead of hauling out a slide projector and a box of slides, you can just plug your D300(S) into the closest High Definition (HD) device, such as an HD television. The camera has a cool HDMI port on the left side, under a rubber flap. We'll talk more about HDMI in a later chapter.

You can also display a slide show on an older-style TV or record it on any device that accepts a normal A/V cable input. An A/V cable is included with your camera; it's the one with the white and yellow RCA jacks on one end.

Print Set (DPOF)

(User's Manual: D300S page 228; D300 page 230)

At first I thought it odd that Nikon chose to put image printing functions in the Playback Menu. Then I thought about it and realized that printing is a permanent form of image playback. You play (print) the images to your printer and then view them without camera or computer. What a concept!

There are two ways to print images from your camera without using a computer. One is by using Digital Print Order Format (DPOF) to create a "print order" on a memory card. This function is called Print set (DPOF). The second way to print from your camera is to plug in a USB cable and print directly to a PictBridge-compatible printer. Both are generally used by non-professional camera users to print JPEG pictures at home or at the local lab, with no post-processing.

Most advanced amateur and professional users of the D300(S) will want to post-process their images in computer software like Nikon Capture NX2 or Adobe Photoshop before printing, so this functionality is not used as often as other functions. However, it can be useful for someone who does not care to manipulate their images in their computer but would rather just take pictures and print them at home or down at the super store.

Since these seldom-used functions require 10 pages to describe, I have relegated this section to our downloadable resources found at **http://rockynook.com/NikonD300S**. For those that want to use this functionality, I have fully described

how in a detailed document called **Print Set (DPOF)** at the download site. **Note**: Print set (DPOF) is only for use with JPEG images. It does not apply to NEF (RAW.)

My Conclusions

Wow! The D300(S) sure does have a lot of playback screens and menus. I remember the old days when to play back some images, you'd have to find the old shoebox full of pictures, or open an album and flip pages. Sometimes, I miss photo albums. You know what? I'm going to run down to the super store right now and buy several albums. Then I'll have some actual images printed and put into those albums. Better yet, I think I'll go buy a PictBridge-compatible printer so I can print my own images for the albums.

Now, let's move on to the next menu system in the camera, the Shooting Menu. This menu is one of the most important menus because it affects how the camera is configured to shoot pictures. The D300(S) gives you four distinct Shooting menu banks that you can configure in completely different ways for various shooting styles. We'll go through each setting on the Shooting Menu, but please realize that each single configuration we discuss can be set up in four separate banks, in four separate ways.

The D300(S) is a very flexible and professional camera that allows you to configure it for four different styles of shooting. You can then switch between the different styles with a few button presses. Let's see how!

Chapter 3. Shooting Menu

F-22 Raptor – Courtesy of Norman Paratore (*carlysgranddad*)

The Shooting Menu settings are the most-used functions in the camera. Spend time carefully learning about each of these selections because you'll use them often. They affect how your camera takes pictures in all sorts of ways.

Here's a list and overview of the items found on the D300(S) Shooting Menu—22 items on the D300S, and 19 on the D300. Each of these items can be configured in different ways by using the four available Shooting menu banks in the D300(S). The camera is a chameleon!

- **Shooting menu bank –** Allows configuration of the camera in four separate ways so that it can act like four different cameras as you change banks.
- **Reset shooting menu –** Restores the factory default settings for the currently selected Shooting menu bank.
- **Active folder –** Selects which folder subsequent images will be stored in on the camera's memory card(s).
- **File naming –** Lets you change three characters of the image's file name so that it is personalized to you.
- **Primary slot selection (D300S only) –** You can select either the SD or CF memory card slot to be the primary slot that receives images.
- **Secondary slot selection (D300S only) –** Allows you to select either the SD or CF memory card slot to be the secondary slot that receives image overflow or copies.
- **Image quality –** Select from the eight image quality types, such as JPEG fine or NEF (RAW).

- **Image size –** Choose to shoot Large (4288×2848, 12.2MP), Medium (3216×2136, 6.9MP), or Small (2144×1424, 3.1MP) images.
- **JPEG compression –** Select Size priority or Optimal quality for your best JPEG images.
- **NEF (RAW) recording –** Set the compression type and bit-depth for NEF (RAW) files.
- **White balance –** You can choose from nine different White balance types, including the ability to measure the ambient light's color balance (PRE or PrE).
- **Set Picture Control –** Choose from several Picture Controls that modify how the pictures look.
- **Manage Picture Control –** Save, load, rename, or delete custom Picture Controls from your camera's internal memory or card slots.
- **Color space –** Select either the industry printing standard Adobe RGB or the Internet and home use standard sRGB color space for your camera.
- **Active D-Lighting –** Allows you to select from several levels of automatic contrast correction for your images. The camera itself will protect your images from a degree of under- or overexposure.
- **Long exp. NR –**
  Uses the "black frame subtraction" method to significantly reduce noise in long exposures. This is a very powerful and useful function if you make long exposures.

- **High ISO NR –** Uses a blurring method to remove noise from images shot with high ISO sensitivity values.
- **ISO sensitivity settings –** Allows you to set the ISO sensitivity between 100 and 6400 ISO or let the camera decide for you automatically.
- **Live view mode –** Choose from Tripod or Hand-held Live view modes. Different methods of autofocus are used for each type.
- **Multiple exposure –** Allows you to take more than one exposure in a single frame and then combine the exposures in interesting ways.
- **Movie settings (D300S only) –** You can use this to set the Quality of the video stream in D-Movie mode. You may also select how the Microphone works, and the Destination card slot for the movies.
- **Interval timer shooting –** You can set your camera on a tripod and make a time exposure with this function. Shooting things like a time exposure of a flower opening becomes easy with the D300(S).

Press the MENU button on the back of your D300(S) to locate the Shooting Menu, which looks like a small green camera in the toolbar on the left side of the Monitor. Figure 3-1 shows the Shooting Menu location found on the Monitor of your D300(S).

The Shooting menu banks are a feature unique to professional-level cameras. Most Nikons have a Shooting Menu, but only the best have multiple Shooting menu banks. Using the four banks, your D300(S) can change from a pro camera to a snapshooter with just a few button presses.

Figure 3-1. The Shooting Menu

It can shoot RAW files using ISO 200, in Adobe RGB Color space, with the Fn (Func) button assigned to Spot metering for serious professional shooting, and very quickly change to Normal quality JPEGs at ISO 400, in sRGB Color space, with high image sharpening for that party where you don't want to think about anything but having a good time. These are only two variations of the many available combinations of bank settings you can design.

The D300(S) has not only four Shooting menu banks, but also four Custom setting banks (covered in the next chapter). You can easily set the functionality of these banks, name them, and use them to quickly change the way your camera behaves. Multiple cameras in one!

The Shooting menu banks allow you to set up functions such as file naming, image quality modes (RAW, JPEG, etc.), white balance, ISO, sharpening, and color space.

Each bank can be configured with different settings, and you can then switch between the banks.

There are four default bank names: banks A, B, C, and D. You can add your own labels to any of these. In this chapter, we'll assume that your camera banks have not yet been adjusted and that you are not entirely familiar with the process. Let's learn how to label bank A with a more useful name and set its individual features. When you've done this once, you'll be ready to set your camera up for special uses and switch between banks quickly. Just repeat the process for each bank, with different settings.

Shooting Menu Bank

(User's Manual: D300S page 254; D300 page 255)

Use the Multi Selector to select the Shooting menu bank item. The camera defaults to bank A from the factory. Here are the screens and steps used to modify the labels for bank A of the Shooting menu banks (see Figure 3-2).

Figure 3-2. Selecting and renaming a Shooting menu bank

1. Notice in the first image of Figure 3-2 that there's a selection called Shooting menu bank with an A after it (unless you or others have previously changed to a different bank, in which case it might be any letter A through D). This means that your camera is using Shooting menu bank A. If any letter other than A is showing, you are using a different Shooting menu bank. Let's give the D300(S) Shooting menu bank A a new label so that you'll be able to see at a glance what this particular bank is set up to accomplish. Scroll right using the Multi Selector. The Monitor will switch to the screen shown in image 2 of Figure 3-2.

2. Assuming that you haven't yet renamed any of your Shooting menu banks, you'll see the four called A, B, C, D, with a blank line following each, and a selection called ABC Rename at the bottom. Scroll down to ABC Rename and then scroll to the right.

3. The bank Rename screen, shown in Figure 3-2, image 3, will appear. The factory default for an unnamed bank is simply a blank field following the letter. In other words, if you haven't yet named your banks, you'll simply see the big letter A followed by a blank field. We'll rename our bank by selecting the top bank A and scrolling to the right.

4. In the screen shown in Figure 3-2, image 4, you'll see a series of symbols, numbers, and letters on top, with a line of dashes at the bottom. The dashes are where we'll put our text to rename the bank. In the upper-left corner

of the character area is a blank spot (to the left of the exclamation mark), which represents a blank for insertion in the line of text. This is good for separating words. If you scroll down past the uppercase letters, you'll find some lowercase letters too. I use "General Purpose" as the name for my camera's bank A, as shown in Figure 3-2, image 5. Let's see how that is done in step 5.

5. Use the Multi Selector to scroll through the numbers and letters to find the characters you want to use. Scroll down for lowercase letters. Press the Multi selector center button on the D300S or the center of the Multi Selector on the D300 to select a character. Keep scrolling around and selecting new characters until you have the entire new bank name in place. If you make a mistake, hold down the Thumbnail/playback zoom out button while using the Multi Selector to move to the position of the error. Push the Delete button on the top left of the back of the camera and the bad character will disappear.

6. Press the OK button to save the new name. When you check the bank's name under the Shooting menu bank setting, you'll see the bank relabeled with your new name, as shown in Figure 3-2, image 6. Repeat these steps to label the other banks.

Congratulations! You have given bank A a more meaningful name so that you can select it quickly.

My Recommendation: I generally name my banks as shown in the list that follows this paragraph. Each of the label names describes at a glance how I intend to use this bank when

shooting. You may want to use different names and settings in each bank; however, you could learn something from how I configure each of mine:

- ***Bank A – General Purpose:*** Bank A is my general purpose bank. I use it when I'm just walking around with my camera doing general photography. I will often modify the camera's settings when using bank A. I know to check before shooting when using this bank. I generally shoot in RAW mode but might switch to JPEG as needed. This is a completely variable bank, and the only one I modify regularly.

- ***Bank B – Best Quality RAW:***
  This is for when I am shooting commercially, with the best quality my camera can muster. I use this on any type of shoot that requires me to post-process the images in-computer. My critical settings for bank B are Image quality at NEF (RAW), with NEF (RAW) recording set to Lossless compressed and NEF (RAW) bit depth at 14-bit, Image size set to Large, White balance to AUTO, Neutral (NL) Picture Control, Color space to Adobe RGB, Active D-Lighting to Off, and ISO sensitivity to Lo 1 (100 ISO). Once set, I rarely modify this bank. Note: NEF (RAW) bit depth set to 14-bit will slow the camera's frame rate from 7 frames per second to 2.5 frames per second. If you are a max-quality sports or wildlife shooter, you may want to leave it set to 12-bit instead.

- ***Bank C – Best Quality JPEG:*** This bank is for when I have no time to post-process the images. I need them as soon as I shoot them but must have maximum quality. My critical settings for bank C are Image quality set to

JPEG fine, Image size set to Large, JPEG compression to Optimal quality, White balance to AUTO, Standard (SD) Picture Control, Color space to Adobe RGB, Active D-Lighting to Low, and ISO sensitivity to Lo 1 (100 ISO). Once set, I rarely change this bank.

- ***Bank D – Party JPEG:*** When I am going to a party with friends, I'll simply switch to this bank and fire away. I could use bank A, but then I'd have to reset it to higher quality later. Instead, I use this bank to have some fun with my camera and friends. The images must be high enough quality to get good prints, at least 11 × 14 (27 cm × 35 cm) in size. The critical settings for bank D are: Image quality at JPEG fine, Image size set to Large, JPEG compression set to Size priority, White balance to Auto, Standard (SD) Picture Control, Color space to sRGB, Active D-Lighting to Normal, and ISO sensitivity to 400 ISO.

Combining Shooting Menu Banks and Custom Setting Banks

Can you see how flexible having these four Shooting menu banks will make your D300(S)? You can create your own bank names and apply the underlying settings however you wish. If you want, you can match these Shooting menu banks to similarly named Custom setting banks, which allow you to set things like the autofocus and metering/ exposure types.

When the Shooting menu banks and Custom setting banks are combined in this manner, the D300(S) becomes a very

powerful camera with strong flexibility to match different photographic needs and styles.

There are no direct connections between the Shooting menu banks and Custom setting banks. I make my own mental connection by giving both similar names and then changing to them at the same time.

We're using Shooting menu bank A as our example and now must set up the camera functionality for this bank. We have 21 more selections in the D300S and 18 in the D300.

Let's scroll down and set each individual line item available under the Shooting Menu. They will each be saved as part of bank A, which we renamed. Banks B through D are unaffected by the changes unless one of them is selected instead. Be sure to set the following critical functions in your selected bank before you use your camera often:

- Image quality and Image size
- JPEG compression (if you're using JPEG mode for this bank)
- NEF (RAW) recording compression (if you're using RAW mode for this bank)
- NEF (RAW) recording > NEF (RAW) bit depth (12- or 14-bit)
- White balance
- Picture Control
- Color space
- ISO sensitivity

The items listed above are just a few of the items that can be set for each bank. They form the basis for how your camera functions when you're using a particular bank. These are the items I personally consider most important. However, you should look at the complete list and decide which are most important to you.

Each bank can be completely configured with these items having different settings. Your D300(S) can act like four different cameras since you can select four different banks, each having different configurations.

When you've finished modifying the items that affect what type of shooting you will do with a bank, your camera now has a certain "personality" for that bank. Each bank, from A through D, can have its own shooting personality.

The Shooting menu bank selection is also available in the D300S from the Information display edit screen found by pressing the Info button twice.

Figure 3-3. D300S Info display edit screen – Shooting menu bank

Choose the Shoot A (bank A-D) selection as shown in Figure 3-3, image 1. We'll now consider what the other 21 (or 18) configurable Shooting Menu functions do so that you can decide how to set Shooting menu bank A. You can, of course, configure each of these items in a completely different way using Shooting menu banks
B through D, and give each bank a different name to help you remember the special configuration, as my recommendations clearly show.

Note: The Shooting Menu items Multiple exposure and Interval timer shooting affect all four Shooting menu banks at once. So, if you change either of these settings, it will affect all four banks (A-D) simultaneously. The other settings affect only the bank your camera is currently using.

Reset Shooting Menu

(User's Manual: D300S page 256; D300 page 257)

Be careful with this selection. Reset shooting menu does what it says—it resets the Shooting Menu for the currently selected bank (only), back to factory default settings (see Figure 3-4).

This is a rather simple process. As shown in image 2 of Figure 3-4, simply choose Yes or No and press the OK button. That's about it. If you select Yes, the Shooting menu bank you're currently using will be reset to factory defaults.

Note: This function resets all functions in a particular Shooting menu bank, including the Multiple exposure and Interval timer shooting settings. If you remember from the last section, these two functions apply across all four Shooting menu banks. This may be a problem if you have carefully configured one of your banks for either of those settings and then execute Reset shooting menu. Multiple exposure will be reset immediately *for all banks*. Interval timer shooting will pop up a warning telling you that it is about to be reset and will allow you to stop the reset action. Please remember that if these two items are reset, they will be reset for all four Shooting menu banks at once.

Figure 3-4. Reset the current Shooting menu bank

My Recommendation: This is an easy way to start fresh with a particular Shooting menu bank. Since it's a full reset of all the values in the one bank, including the two special settings—Multiple exposure and Interval timer shooting—that affect all four banks, please pay attention to the previous note. I use this when I've purchased a used camera and want to clear someone else's settings or simply want to start fresh at any time on a particular bank. Don't be afraid of using this function; you can always reconfigure the bank affected.

Active Folder

(User's Manual: D300S page 256; D300 page 258)

The D300(S) automatically creates a folder on its primary memory card called 100D300S, while the D300 uses the name 100ND300 on its single CF memory card. This folder can contain up to 999 images.

If you want to store images in separate folders on the memory card, you might want to create a new folder, such as 200D300S or 200ND300. Since the D300S and D300 folder names differ by a couple of letters, I am going to use the D300S folder name for the rest of this section; otherwise, I'll be repeating numbers over and over. Whenever you see something like 100D300S just remember that the D300 name is slightly different with 100ND300 instead.

Each folder you create can hold 999 images and, using Active folder, you can select any folder as the default folder. This is a way to isolate certain types of images on a photographic outing. Maybe you'll put landscapes in folder 300D300S and people shots in 400D300S. Whenever the camera senses that the current folder contains 999 images, a new folder is created, with the value of the first three digits of the folder name increased by one. If you are using a folder named 100D300S, the camera will automatically create a new folder called 101D300S when you exceed 999 images in folder 100D300S.

When manually creating folder names, you may want to leave room for the camera's automatic folder creation and naming. If you try to create a folder name that already exists, the

camera doesn't give you a warning; it simply switches to the already existing folder. Let's look at how to create a new folder with a number of your choice, from 101 to 999 (101D300S or 999D300S).

Figure 3-5. Creating a New folder number

Here are the screens and steps used to create a new folder (see Figure 3-5):

1. As shown in Figure 3-5, to create a new folder, scroll to the right when Active folder is selected.
2. Select New folder number and scroll to the right.
3. You'll now see a screen that allows you to create a New folder number between 100 and 999 (see Figure 3-5, image 3). Create your number using the Multi Selector, then press the OK button.

You cannot create a folder numbered 000 (I tried) or use any other number less than 100. Remember that the three-digit number you select will have D300S or ND300 appended to it and will look something like 101D300S or 101ND300 when you have finished.

Once you have created a new folder, the camera will automatically switch to it. What if you want to simply start using an existing folder instead of making a new one? The

D300(S) makes that easy with the following screens and steps (see Figure 3-6):

Figure 3-6. Selecting an existing folder number

1. Refer to Figure 3-6, images 1 and 2. Scroll down to Select folder and then scroll right. You'll see the available folders displayed in a list that looks like the one shown in Figure 3-6, image 3.
2. Select one of the folder numbers from the Select folder menu.
3. Press the OK button. The camera will now switch back to the Shooting Menu main screen, with the new folder number showing next to Active folder.

All images will now be saved to this folder until you exceed 999 images in the folder or manually change to another. One note of caution: If you are using folder 999D300S and the camera records the 999th image—or if it records image number 9999—the Shutter-release button will be disabled until you change to a different folder.

My Recommendation: As memory cards get bigger and bigger, I can see a time when this functionality will become very important.

Last year I shot around 100 GB of image files. With the newest memory cards now hitting 64 GB, I can foresee a time when the card(s) in my camera will become a yearlong backup source.

At the present time, I do not use the Active folder functionality all that much, but I guarantee you I will in the near future. This is a good function to learn how to use!

File Naming

(User's Manual: D300S page 258; D300 page 260)

File naming allows you to control the first three letters of the file name for each of your images. The default is DSC, but you can change it to any three alphanumeric characters provided by the camera.

The camera defaults to using the following File naming for your images:

- sRGB color space: DSC_1234
- Adobe RGB color space: _DSC1234

According to which Color space you are using, the camera adds an underscore character to the end of the three DSC characters in sRGB or to the beginning in Adobe RGB, as shown in Figure 3-7, image 2.

I use this feature on my camera in a special way. Since the camera can count images in a File number sequence that continues from 0001 to 9999—see Custom setting d7 in the D300S and d6 in the D300—I use File naming to help me personalize my images. The camera cannot count images higher than 9999. Instead, it rolls back over to 0001 for the 10,000th image.

When I first got my D300, I changed the three default characters from DSC to 1DY. The "1" tells me how many times my camera has passed 9999 images, and "DY" are my initials, thereby helping me protect the copyright of my image in case it is ever stolen and misused.

Since the camera's image File number sequence counter rolls back over to 0001 when you exceed 9999 images, you need a way to keep from accidentally overwriting images from the first set of 9999 images you took. I use this method:

▪ First 9999 images:	1DY_0001 through 1DY_9999
▪ Second 9999 images:	2DY_0001 through 2DY_9999
▪ Third 9999 images:	3DY_0001 through 3DY_9999

See how simple that is. The above numbers show a range of 30,000 images. Since the D300(S)'s shutter is tested to a professional level of 150,000 cycles, you will surely need to use a counting system like this one. My system only works up to 89991 images (9999 × 9). If you wanted to start your camera at "o" instead (0DY9999), you could count up to 99,990 images.

If Nikon would ever give us just one extra digit in our image counter, we could count in sequences of just under 100,000 images instead of 10,000 images. I suppose that many of us will have traded on up to the next Nikon DSLR before we reach enough images that this really becomes a constraint. On my Nikon D2X that I've used since 2004, I'm now close to 40,000 images.

File Number Sequence used with File Naming

Custom setting d7 in the D300S and Custom setting d6 in the D300 control the File number sequence setting. That function

works along with File naming to let you control how your image files are named. If File number sequence is set to Off, the D300(S) will reset
the four-digit number—after the first three custom characters in File naming—to 0001 each time you format your camera's memory card. I set File number sequence to On as soon as I got my camera so that it would remember the sequence all the way up to 9999 images. I want to know exactly how many pictures I've taken over time. We'll talk more about File number sequence in the chapter titled **Chapter 4**.

This is merely the way I'm using this useful feature in my D300S. If my method doesn't work for your needs, you could use the three characters to classify your image names in all sorts of creative ways.

To rename your three custom characters, please refer to Figure 3-7. This works similarly to the method for naming the Shooting menu banks discussed in the section Shooting Menu Bank at the beginning of this chapter (see Figure 3-2), except that you only have uppercase characters and numbers from which to select.

Figure 3-7. File naming

Here are the steps to set up your custom File naming characters (see Figure 3-7):

1. Select File naming from the Shooting Menu.
2. Use the Multi Selector to scroll through the numbers and letters to find the characters you want to use.
3. Press the Multi selector center button on the D300S or the center of the Multi Selector on the D300 to select and insert a character.
4. To correct an error, hold down the Thumbnail/playback zoom out button and use the Multi Selector to scroll to the character you want to remove. Use the garbage can Delete button to delete the bad character.
5. Press the OK button to save your three new custom characters. They will now appear at the beginning of each new image file name.

Now you've customized your camera so that the image names it creates reflects your personal needs.

My Recommendation: I discussed how I use these three custom characters in the beginning of this section. You may want to use all three of your initials or some other numbers or letters. Some will even leave these three letters at their default of DSC. I recommend at least using your initials so that you can easily identify these images
as yours. With my family of five Nikon shooters it sure makes it easier for me! If you use my method, just be sure to watch for the images to roll over 9999 so that you can rename the first character for the next sequence of 9999 images.

Primary Slot Selection (D300S Only)

(User's Manual: D300S page 72)

Primary slot selection is only available in the D300S camera. The D300 only has one memory card slot, while the D300S has two.

This function and the next, Secondary slot function, are concerned with where your camera stores its image files. If you're using two memory cards, an SD and a CF, you'll need to set these two functions to control where files go and what happens when a card fills up.

You'll need to decide which card type you want to shoot with most often. Will you use the SD slot as the primary or the CF slot? If you have more of one type than the other, or simply like one card style better, this will let you choose your favorite.

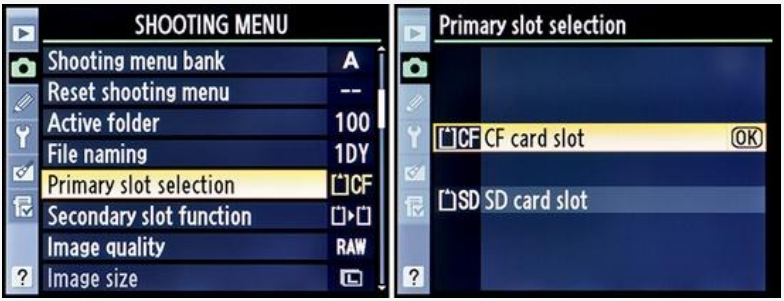


Figure 3-8. Choosing the primary card slot

Here are the steps to select the primary card slot (see screens in Figure 3-8):

1. Select Primary slot selection from the Shooting Menu and scroll to the right.
2. Choose your favorite card slot from the Primary slot selection screen. Your choices are CF card slot and SD card slot.
3. Press the OK button to lock in your choice.

Next, we'll look at how to set the Secondary slot function. This lets you control what happens when you fill up the primary card or want to separate RAW files from JPEGs.

My Recommendation: I happen to prefer the smaller SD cards, merely because I can carry more of them and they can be used in more Nikon cameras, like my D90 or D5000. So I set my primary slot to SD card slot. If you upgraded from a less costly Nikon DSLR, you may want to do the same since you'll probably have several SD cards. Or, you may prefer the CF card type, especially if you use the D300S as a backup to a D700 or D3/D3s/D3x. You don't have to use both cards slots if you don't have one of the two types; the camera will work fine with just one card. If you have Primary slot selection set to the SD slot—with a CF card in the CF slot—and then accidentally leave the SD card out of the camera, the camera is smart enough to use whatever card type it can find, in this case the CF card.

Secondary Slot Function (D300S Only)

(User's Manual: D300S page 72)

Secondary slot function is available on the Nikon D300S but not the D300. It's designed to let you do image flow control. Here is a description of the three different ways you can configure the Secondary slot function setting:

- ***Overflow*** – Have you ever gotten the dreaded "Card full" message? Well, if you select Overflow, it will take a lot longer to get this message. Overflow writes all images to the card you have selected under Primary slot selection. Then when the primary card is full, the rest of the images are sent to the secondary card. The image number shown on the Control panel will go down as you take pictures and they are written to the primary card. When the image count nears zero, the camera will switch to the secondary card and the available image count number on the Control panel will increase to however many images will fit on the secondary card. It is not necessary to use the same size card when using this function. The camera will merely fill up all available space on both cards as you take pictures.
- ***Backup*** – This function is a backup method for those shooting critical images. Every image you take is written to both the primary and secondary memory cards at the same time. You have an automatic backup system when you use the Backup function. If you are a computer geek (like me), you'll recognize this as RAID 1 or drive

mirroring. Since your camera is very much a computer, a function like this is great to have. Be sure that both cards are of equal capacity or that the secondary card is larger than the primary when you use this function. Otherwise, you'll have reduced capacity shown for the primary card. Since the camera is required to write a duplicate image to each card, the smallest card in the two slots sets the maximum capacity of the camera's storage.

- ***RAW primary, JPEG secondary –*** For those who like to shoot NEF (RAW) files, this function can save some time. You'll have a JPEG for immediate use and a RAW file for later post-processing. When you take a picture, the camera will write the RAW file to the primary card and a JPEG file to the secondary card. There is no choice in this arrangement—RAW always goes to primary and JPEG to secondary. Also, this function only works as described when you have Shooting Menu > Image quality set to some form of NEF (RAW) + JPEG. If you set Image quality to just NEF (RAW) or JPEG fine alone—instead of NEF (RAW) + JPEG fine—the camera will simply write a duplicate file to both cards instead of a RAW on one and a JPEG on the other. In other words, if Image quality is set to NEF (RAW), the camera will write two NEF files; if set to JPEG, two JPG files; and if set to TIFF (RGB), two TIF files—one on each card. Basically, unless you set Shooting Menu > Image quality to some form of NEF (RAW) + JPEG, this function acts like the Backup function mentioned previously.

Here are the screens and steps to choose one of the Secondary slot functions, including Overflow, Backup, or RAW primary, JPEG secondary (see Figure 3-9):

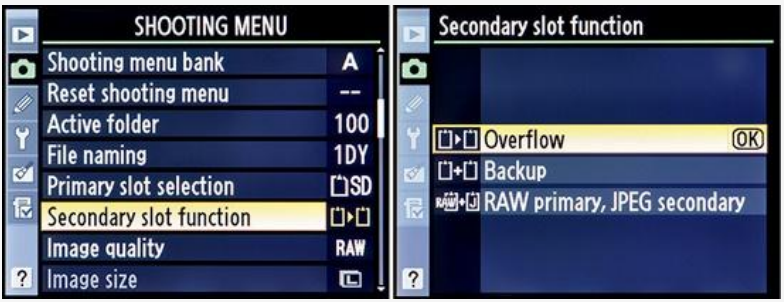


Figure 3-9. D300S Choosing the Secondary slot function

1. Select Secondary slot function from the Shooting Menu and scroll to the right.
2. Choose one of the three selections we discussed previously from the Secondary slot function screen.
3. Press the OK button to lock it in for use.

My Recommendation: When I'm just out shooting for fun or for any type of photography where maximum image capacity is of primary importance, I select Overflow. This causes the camera to fill up the primary card and then automatically switch to the secondary card for increased image storage. If I'm shooting images that I cannot afford to lose, such as at a unique event like a wedding or baptism, I'll often use the Backup function for automatic backup of every image.

If I want both a RAW and JPEG file, I'll use the RAW primary, JPEG secondary function. This lets me have the best

of both worlds when card capacity is not worrisome. This, too, allows a measure of redundancy, like the Backup method. In a sense you are still backing up the same image, they are just in different formats—one RAW and one JPEG. I use each of these three selections from time to time, but my favorite is Overflow.

Image Quality

(User's Manual: D300S page 68; D300 page 56)

Image quality is simply the type of image your camera can create, along with the amount of image compression that modifies picture storage sizes.

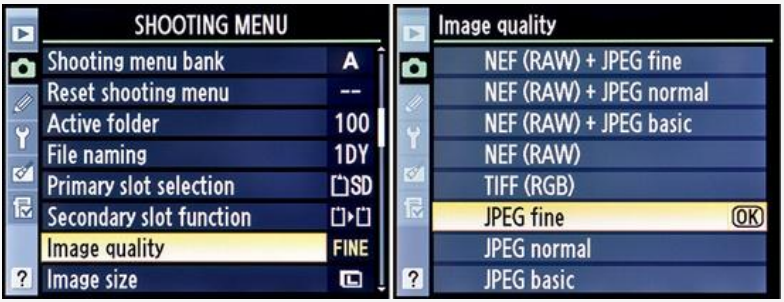


Figure 3-10. Choosing an Image quality

You can shoot several distinct image formats with your D300(S). We'll examine each format in detail—discussing the pros and cons for each as we go. When done, you'll have a better understanding of the formats and can choose an appropriate one for each of your styles of shooting.

Here are the steps to select an Image quality setting (see the screens in Figure 3-10):

1. Select Image quality from the Shooting Menu and scroll to the right.
2. Choose one of the eight Image quality types listed. Figure 3-10 shows JPEG fine as the selected format.

3. Press the OK button to select the format.

You can also use the QUAL button on the Release mode dial to set the Image quality. Here are the controls and steps to do so:

Figure 3-11. Setting Image quality with external controls

1. Hold down the QUAL button (see Figure 3-11, number 1).
2. Look at the Control panel to see the Image quality values (see Figure 3-11, number 2).
3. Rotate the rear Main command dial to change the Image quality (RAW, JPEG, TIFF, etc.). Use the front Sub-command dial, as shown in Figure 3-11, number 3, to change the Image size (Large, Medium, or Small).
4. Release the QUAL button to lock in the modified settings.

The camera supports the following Image quality types:

- NEF (RAW) + JPEG fine
- NEF (RAW) + JPEG normal
- NEF (RAW) + JPEG basic
- NEF (RAW)
- TIFF (RGB)
- JPEG fine
- JPEG normal
- JPEG basic

Let's look at each of these formats and see which you might want to use regularly. We'll go beyond how to turn the different formats on and off, and discuss why and when you might want to use a particular format over another. Even though our list shows eight different entries, the camera really only shoots in three formats—NEF (RAW), TIFF, and JPEG.

The first three selections on our image type list (and in Figure 3-10, image 2) allow the camera to take a NEF (RAW) file and a JPEG fine, normal, or basic file at the same time. The JPEG format has various levels of image compression available—fine, normal, and basic—so there are three selections on the list to reflect the different compression levels. When you press the Shutter-release button with one of the three NEF (RAW) + JPEG Image quality modes selected, the camera creates a RAW file and a JPEG file and then writes them to the memory card(s) as separate files. In order to understand how they work, we'll have to examine the individual formats for each—NEF (RAW) and JPEG. We'll also examine the TIFF format to see how it may be useful to some of us.

NEF (RAW) Image Quality Format

The Nikon NEF proprietary format stores raw image data directly to the camera's memory card. Most of the time, photographers refer to a NEF file simply as a RAW file. These RAW files can easily be recognized because the file name ends with NEF. This is not an image format used in day-to-day graphical work (like JPEG) and it's not yet really even an image. Instead, it's a base storage format used to store images for conversion to another file format ending in JPG, TIF, EPS, or PNG. Other than initial compression—if selected in NEF (RAW) recording—it stores all available image data and can be easily manipulated later.

You must use conversion software, such as the included Nikon Software Suite, Nikon ViewNX, Nikon Capture NX2, Adobe Lightroom, or Adobe Photoshop, to later convert your NEF format RAW files into other formats. There are also several after market RAW conversion applications available, such as Bibble, Capture One, and PhaseOne.

Before you go out shooting in the NEF (RAW) format, why not install your conversion software of choice so that you'll be able to view, adjust, and save the images to another format when you return?

You may not be able to view NEF files directly on your computer unless you have RAW conversion software installed. Some operating systems provide a downloadable "patch" or "codec" that lets you at least see NEF files as small thumbnails. Do a Google search on these specific words and you'll find a Microsoft Windows XP patch for NEF (RAW) files: "microsoft raw thumbnail viewer download". You'll be able to download a file called RAWViewerSetup.exe (about

5.8 MB), which allows XP to display small NEF file thumbnails when you view a folder that contains them.

As this book is being written, I can find only codecs for 32-bit Windows XP and Vista. There should be one available for Microsoft Windows 7 by the time this book is in your hands, or maybe it will natively work with the NEF format.

There are also third-party companies, such as Ardfry Imaging, LLC, that offer various 32- and 64-bit codecs for a small fee (**www.ardfry.com**). I bought the Ardfry version for my computer. If you're running 64-bit Windows Vista or Windows 7, you may want to check out Ardfry Imaging or do a little research to see what else is currently available for viewing NEF files as thumbnails in Windows or on a Mac.

The Nikon CD that came with your camera contains the Nikon Software Suite for both Macintosh and Windows computers. It provides Nikon ViewNX, which can be used to examine your NEF (RAW) files in detail and convert them to other formats.

The CD also contains Nikon Transfer, a program that helps you get your images off of the camera and onto your computer. I really like Nikon Transfer since it helps me transfer pictures to my computer and leave them on my memory card too. If I take more pictures on the same memory card, Nikon Transfer will transfer only the new ones when I reconnect to the computer.

In a sense, Nikon Transfer acts like a one-way, memory-card-to-computer synchronizer. As memory cards get bigger and bigger, I can see a time when I'll keep several months worth of images on my camera's card and transfer the newest ones I take to the computer.

Nikon ViewNX RAW conversion software is supplied free with the D300(S), while Nikon Capture NX2 requires a separate purchase. Capture NX2 has become my favorite conversion software, along with Adobe Photoshop. I use ViewNX to look at my images because it has an excellent browser-type interface, and then I push my images to Capture NX2 for final post-processing. If I need to remove an ugly spot in the sky from the edge of an otherwise spotless image, or a blemish from a person's face, I'll use Photoshop's Clone and Healing tools.

NEF (RAW) format has two image data compression formats available. These compression types will be considered in the upcoming section titled **NEF (RAW) Recording**. Basically, compression is applied to the image and reduces its size by varying amounts according to the level of detail in the image. We'll discuss NEF compression in more detail shortly.

RAW Files Aren't Images Yet!

Now, let's talk about NEF, or RAW, quality for a while. I'm a NEF (RAW) photographer about 98 percent of the time. I think of a RAW file like I thought of my slides and negatives a few years ago. It's my original image file that must be saved and protected.

It's important that you understand something very different about NEF (RAW) files. They're not really images—yet. Basically, a RAW file is composed of black-and-white sensor data and camera setting information markers. The RAW file is saved in a form that must be converted to another image type to be used in print or on the Web.

When you take a picture in RAW format, the camera records the image data from the sensor and stores markers for how the camera's color, sharpening, contrast, saturation, etc. are set. But it does not apply the camera setting information to the image. In your computer's post-processing software, the image will appear on-screen using the settings you initially configured in your D300(S). However, these settings are only applied in a temporary manner for your computer viewing pleasure.

If you don't like the white balance you selected at the time you took the picture, simply apply a new white balance and the image will appear just as if you had used the new white balance setting when you first took the picture. If you had low sharpening set in-camera and change it to higher sharpening in-computer, the image will look just like it would have looked had you used higher in-camera sharpening when you took the image. You can change sharpening levels in the Picture Control you have selected.

This is quite powerful! Virtually no camera settings are applied to a RAW file in a permanent way. That means you can apply completely different settings to the image in-computer and it will appear just as if you had used the new settings when you first took the picture. This allows a lot of flexibility later. If you shot the image initially using the Standard Picture Control and now want to use the Vivid Picture Control, all you have to do is apply the Vivid Picture Control before the final conversion and it will be as if you used the Vivid Picture Control when you first took the picture. Complete flexibility!

NEF (RAW) is generally used by individuals concerned with maximum image quality and who have time to convert the

image in the computer after taking it with the camera. A conversion to JPEG sets image markers permanently, while a conversion to TIFF sets the markers but allows you to modify the image later. Unfortunately, TIFF format has very large file sizes.

Here are the pros and cons of NEF (RAW) format:

NEF (RAW) Positives

- Allows the manipulation of image data to achieve the highest-quality image available from the camera.
- All original detail stays with the image for future processing needs.
- No conversions, sharpening, sizing, or color rebalancing will be performed by the camera. Your images are untouched and pure!
- You can convert the NEF file to any of the other image formats by using your computer's much more powerful processor instead of the camera processor.
- You have much more control over the final look of the image since you, not the camera, are making decisions as to the appearance of the image.
- 12-bit or 14-bit format provides maximum image color information.

NEF (RAW) Negatives

- Not often compatible with the publishing industry, except by conversion to another format.

- Requires post-processing by special proprietary software as provided by the camera manufacturer or third-party software programmers.
- Larger file sizes (so you must have large storage media).
- No accepted industry-standard RAW format. Each camera manufacturer has its own proprietary format. Adobe has a RAW format called DNG (Digital Negative) that might become an industry standard. We'll see!
- Industry standard for printing is 8-bit files, not 12-bit or 14-bit files.

Now, let's examine the most popular format on the planet, JPEG.

JPEG Image Quality Format

As shown in Figure 3-10, image 2, the D300(S) has three JPEG modes. Each mode affects the final quality of the image. Let's look at each mode in detail:

▪ JPEG fine	(Compression approximately 1:4)
▪ JPEG normal	(Compression approximately 1:8)
▪ JPEG basic	(Compression approximately 1:16)

Each JPEG mode provides a certain level of "lossy" image compression. The human eye compensates for small color changes quite well, so the JPEG compression algorithm

works very well for viewing by humans. A useful thing about JPEG is that one can vary the file size of the image, via compression, without affecting quality too much.

Here are details on the three JPEG modes:

- JPEG fine (or Fine Quality JPEG) uses a 1:4 compression ratio, so there is a large difference in the file size, with it being as small as 25 percent of the original size. In this mode, a normal 20-megabyte D300(S) file can be compressed down to as little as 5 megabytes without significant loss of image quality. If you decide to shoot in JPEG, this mode will give you the best-quality JPEG your camera can produce. While a lossless-compressed RAW setting allows only about 500-600 images on an 8-gigabyte CF card, the JPEG fine setting raises that to about 1,200 images.
- JPEG normal (or Normal Quality JPEG) uses a 1:8 compression ratio. This makes a 20-megabyte D300(S) image file as small as 2.5 megabytes. The image quality is still very acceptable in this mode. If you are shooting at a party for the 4 × 6 inch (10 × 15 cm) image size, this mode will allow you to make lots of images. An 8-gigabyte card will hold about 2,200 JPEG normal image files.
- JPEG basic (or Basic Quality JPEG) uses a 1:16 compression ratio, so the 20-megabyte D300(S) file is stored as a 1.25-megabyte JPEG file. Remember, these are full-size files, so you can surely take a lot of pictures. If one is shooting for the Web, or just wants to document an area well, this mode provides sufficient quality. My

D300S tells me it can store a whopping 4,300 JPEG basic files on my 8-gigabyte CF card.

Note: It's hard to specify an exact number of images that a particular card size will hold. My D300S reports that a little over 300 lossless-compressed NEF (RAW) images will fit on an 8-gigabyte memory card, yet when the shooting is finished, I often have over 500. With JPEG's higher compression ratio, it is even harder to predict exactly. Image complexity has a lot to do with final compressed file size. That's why the camera under-reports the number of images it can hold. You'll find that your memory cards will usually hold many more images than the estimate presented by the camera.

JPEG (Joint Photographic Experts Group) is used by individuals who want excellent image quality but have little time or interest in post-processing or converting images to another format. They want to use the image immediately when it comes out of the camera, with no major adjustments.

The JPEG format applies your chosen camera settings to the image when it is taken. The image comes out of the camera ready to use, as long as you have exposed it properly and have configured all the other settings appropriately for the image.

Since JPEG is a lossy format, one cannot modify and save a JPEG file more than a time or two before compression losses ruin the image. However, since there is no post-processing required, this format allows much quicker usage of the image. A person shooting a large quantity of images, or who doesn't have the time to convert RAW images, will usually use JPEG. That encompasses a lot of photographers.

While nature photographers might want to use NEF (RAW), since they have more time for processing images and wringing the last drop of quality out of them, event or journalist photographers may not have the time or interest in processing images, so they'll often use JPEG.

Here are the pros and cons of using JPEG mode:

JPEG Positives

- Allows for maximum number of images on camera card and in-computer hard drive storage.
- Allows for the fastest transfer from camera memory buffer to memory card storage.
- Absolute compatibility with everything and everybody in imaging.
- Uses the industry printing standard of 8 bits.
- High-quality, first-use images.
- No special software needed to use the image right out of the camera (no post-processing).
- Immediate use on websites with minimal processing.
- Easy transfer across the Internet and as e-mail attachments.

JPEG Negatives

- JPEG is a lossy format, which means that it permanently throws away image data as you select higher levels of compression (fine, normal, basic).

- You cannot manipulate a JPEG image more than once or twice before it degrades to an unusable state. Every time you modify and resave a JPEG image, it loses more data and quality.

TIFF Image Quality Format

The TIFF (RGB) format creates images that do not require post-processing but can easily be manipulated later if desired. Some people will use TIFF mode for initial shooting. TIFF is not considered a lossy format, although there is an initial conversion from 12 or 14 bits to 8 bits. The image loses 4 or 6 bits during the conversion, so some color data is lost, but it is not enough to make a big difference in the image. Use TIFF mode if you do not want the lossy compression of a JPEG and if you want to adjust the images later in your computer.

TIFF may be used by those who want to be able to work with their images over and over without throwing away data, as happens with JPEG files when they are compressed. When you shoot in TIFF, the camera does not compress the image. However, it does apply the camera settings to the image file immediately. Since the camera shoots natively in 12-bit or 14-bit, there is some initial data loss when using the TIFF format as images are converted to 8-bit TIFF files. The primary problem with TIFF files is that they are huge and will slow your camera down while it saves the files.

Here are the pros and cons of the TIFF format:

TIFF Positives

- Very high image quality.

- Excellent compatibility with the publishing industry.
- Is considered a lossless format since the image normally uses no compression and loses no more data than the initial camera conversion from 12 or 14 bits to 8 bits.
- Images can be modified and resaved an endless number of times without losing image data.
- Does not require software post-processing during or after download from the camera, so the image is immediately usable.

TIFF Negatives

- The files are very large, so your ability to take a lot of images requires large and expensive storage cards.
- Large computer hard drives are needed to store these multi-megabyte images.
- In-camera image processing is slower, so you will be limited in the number of fast pictures you can take.

Unless you have an extremely high-speed Internet connection, don't even consider sending one of these monsters across the Internet. Personally, I would rather shoot in NEF (RAW) format since I can get almost double the number of images on my memory card and they are 12 or 14 bits instead of the TIFF mode's 8 bits.

Combined NEF and JPEG Shooting (Two Images at Once)

Some shooters use the three storage modes at the beginning of Figure 3-10, image 2, whereby the D300(S) takes two images at the same time—NEF (RAW) + JPEG fine, normal, or basic. This gives you the best of both worlds in that the camera takes a nice NEF file and a JPEG file each time you press the Shutter-release button. In NEF (RAW) + JPEG fine, my camera's 8-gigabyte single-card storage drops to about 295 images since it is storing a NEF and a JPEG file for each picture taken.

Here are the three modes found at the beginning of the Shooting Menu > Image quality setting:

- NEF (RAW) + JPEG fine
- NEF (RAW) + JPEG normal
- NEF (RAW) + JPEG basic

With the D300S (only), you can set Shooting Menu > Secondary slot function to write the NEF (RAW) file to one card and a JPEG fine to the other.

You can use the NEF (RAW) file to store all the image data and later process it into a masterpiece, or you can just use the JPEG file immediately with no adjustment. A lot of people use one of these three modes quite often. You can have a JPEG to give others immediately and later work on the NEF (RAW) file for special purposes.

There is no need to go into any amount of detail about these modes since the NEF (RAW) + JPEG modes have the same

features as their stand-alone modes. In other words, the RAW file in NEF + JPEG mode works just like a normal RAW file if you were using the stand-alone NEF (RAW) mode. The JPEG in the NEF + JPEG mode works just like a stand-alone JPEG fine, normal, or basic image without the NEF (RAW) file.

If you need more information on these three modes, just refer to the previous sections on NEF (RAW) or JPEG Image quality formats.

Image Compression Information

Two of the three Image quality file formats that the D300(S) provides will allow you to compress the image file into a smaller file size. We'll discuss several image compression types like JPEG fine/normal/basic, JPEG Size priority/Optimal quality, and NEF (RAW) Lossless/ Compressed in later sections of this chapter. However, for now I wanted to mention where the compression functions live on the Shooting Menu system.

JPEG compression is controlled by the Shooting Menu > JPEG compression selection, along with the JPEG fine, normal, or basic compression on the Shooting Menu > Image quality screen. JPEG is always a compressed format; you'll just select how much compression is applied. NEF (RAW) compression is controlled by the Shooting Menu > NEF (RAW) recording > Type selection. These two compression selections allow you to control the size of your JPEG and RAW image files.

Pay careful attention to the various compression levels offered for the images you shoot. Once you set these

compression levels, all images of that format will be affected. Also, remember that image compression is Shooting menu bank specific, which means that you can control it separately for each of your camera's four Shooting menu banks. TIFF (RGB) files are not compressed in the D300(S), which is one reason the file sizes are so large for the TIFF format.

Final Image Format Ramblings

Which format do I prefer? Why, RAW, of course! But, it does require a bit of a commitment to shoot in this format. The camera is simply an image-capturing device, and you are the image manipulator. You decide the final format, compression ratios, sizes, color balances, etc. In NEF (RAW) mode, you have the absolute best image your camera can produce. It is not modified by the camera's software and is ready for your personal touch. No camera processing allowed!

If you get nothing else from this chapter section, remember this—by letting your camera process the images in *any* way, it is modifying or throwing away image data. There is only a finite amount of data for each image that can be stored on your camera, and later on the computer. With JPEG or TIFF mode, your camera optimizes the image according to the assumptions recorded in its memory. Data is being thrown away permanently, in varying amounts.

If you want to keep *all* of the image data that was recorded with your images, you must store your originals in RAW format. Otherwise, you'll never again be able to access that original data to change how it looks. A RAW file is the

closest thing to a film negative or a transparency that your digital camera can make.

That's important if you would like to modify the image later. If you are concerned with maximum quality, you should probably shoot and store your images in RAW (or even TIFF) format. Later, when you have the urge to make another masterpiece
out of the original RAW image file, you'll have *all* of your original data intact for the highest-quality image.

If you're concerned that the RAW format may change too much over time to be readable by future generations, you might want to convert your images into TIFF or JPEG files. TIFF is best if you want to modify them later. I often save a TIFF version of my best files just in case RAW changes too much in the future. Why not do a little more research on this subject and decide which you like best?

My Recommendation: I shoot in NEF (RAW) format for my most important work and JPEG fine for the rest. Some people find that JPEG fine is sufficient for everything they shoot. Those individuals generally do not like working with files in-computer or do not have time. NEF (RAW) files are not yet usable images and must be converted to another format. However, RAW provides the highest possible quality your camera can create. You'll use both RAW and JPEG, I'm sure. The format you use most often will be controlled by your time constraints and digital workflow. Most of us use TIFF only when we convert a RAW file in-computer into that format. I rarely, if ever, shoot images in TIFF. There are just not enough benefits to deal with the larger files and slower transfer speeds.

Image Size

(User's Manual: D300S page 71; D300 page 60)

Image size lets you shoot with your camera set to various megapixel ratings. The default Image size setting for the D300(S) is Large, or 12.2 M (12.2 megapixels). You can change this rating from 12.2 M to 6.9 M, or even 3.1 M (see Figure 3-12).

Image size only applies to images captured in TIFF (RGB) or JPEG fine/normal/basic modes.

If you're shooting with your camera in any of the NEF (RAW) + JPEG modes, it only applies to the JPEG image in the pair.

Figure 3-12. Choosing an Image size

Image size does not apply to a NEF (RAW) image. This setting is relatively simple since it affects just the megapixel (M) size of the image. Here are the three settings under Image size:

- Large – 4288×2848 – 12.2 M
- Medium – 3216×2136 – 6.9 M
- Small – 2144×1424 – 3.1 M

Here are the steps to select an Image size (see Figure 3-12):

1. Select Image size from the Shooting Menu and scroll to the right.
2. Choose one of the three Image size settings listed. Figure 3-12 shows Large as the selected size.
3. Press the OK button to choose the size.

I've been playing around with these settings for the fun of it. I'm not very interested in using my 12.2 M camera as a 6.9 M or 3.1 M. However, there are reasons to shoot at the lower megapixel levels, such as when a smaller resolution image is all that will ever be needed or if card space is at an absolute premium.

Setting the camera's Image quality to JPEG basic, Image size to Small, and JPEG compression to Size priority allows it to capture 15,800 images on an 8-gigabyte card. The images are 3.1 MP in size (2144 × 1424 = 3,053,056 pixels, or 3.1 megapixels), and are compressed to the maximum, but there are a large number of them. If I were to set off today to walk completely around the Earth, and I had only one 8-gigabyte memory card to take with me, well, my camera will give me almost 16,000 images on the one card—so I can at least document my trip well.

My Recommendation: Unless you have really small-capacity memory cards, you'll get the best images at 12.2 M. Using the smaller sizes won't affect the quality of a

small print but will seriously limit your ability to enlarge your images. I recommend leaving your camera set to Large unless you have a specific reason to shoot smaller images.

JPEG Compression

(User's Manual: D300S page 70; D300 page 58)

JPEG compression allows you to further fine-tune the level of compression of your JPEG images. The JPEG format is always a compressed format. The Image quality settings for JPEG images include fine, normal, and basic. Each of these settings provides a certain level of compression of the file size.

As discussed previously, a JPEG fine file has a 1:4 compression ratio, while JPEG normal is 1:8, and JPEG basic is 1:16. A JPEG file is smaller in size than a RAW file or TIFF file—especially TIFF.

JPEG files will normally vary in size when the subject of one image is more complex than that of another. For instance, if you take a picture of a tree with lots of leaves and bark against a bright blue sky, JPEG's compression formatting has a lot more work to do than if you took a picture of a red balloon on a plain white background. All those little details in the picture of the tree cause lots of color contrast changes, so the JPEG file size will naturally be bigger for the complex image. In the balloon image, there is little detail in the balloon or the background, so the JPEG file size will normally be much smaller. The less detail in an image, the more efficient JPEG compression is.

What if you want all of your JPEG images to be the same approximate size? Or, what if file size doesn't matter to you, and quality is much more important? That's what the JPEG

compression menu allows you to control. Let's discuss the two settings:

- ***Size priority*** – This compression setting is designed to keep all your JPEG files at a certain uniform size. This size will vary according to whether you selected JPEG fine, normal, or basic in the Image quality menu. Image quality controls the regular, everyday compression level of the JPEG file, while Size priority tweaks it even more. How does it work? With Size priority enabled, the camera's software has a certain file size in mind for all the JPEGs you shoot.

  Let's say the camera wants to use a4.5-megabyte file size. The D300(S) will do its best to keep all JPEGs set to that particular file size by altering the level of compression according to content. If a JPEG file has lots of fine detail, it will require more compression than a file with less detail in order to maintain the same file size.

  By enabling this function, you are telling the camera that it has permission to throw away however much image data it needs to in order to get each file to the target size of 4.5 megabytes. This could lower the quality of a complex landscape shot much more than a shot of a person standing by a blank wall. Size priority instructs the camera to sacrifice image quality—if necessary—to keep the file size consistent.

  Use this function only for images that will not be used for fine art purposes. Otherwise, your image may not look as good as it could.

- ***Optimal quality*** – This setting really doesn't do anything extra to your images; the camera simply uses less compression on complex subjects.

  In effect, you are telling the camera to go ahead and vary the file size so that image quality will be good for any subject, complex or plain.

  Instead of increasing compression to make an image of a complex nature scene fit a certain file size—like Size priority does—the camera only compresses the image to the standard compression level based on the Image quality you selected (JPEG fine, normal, or basic).

  In other words, the camera tries to preserve image quality by limiting compression of complex images. Less image data is thrown away, so the image quality is higher. However, file size will vary depending on the complexity of the subject.

Here are the screens and steps to choose a JPEG compression type (see Figure 3-13):

1. Select JPEG compression from the Shooting Menu and scroll to the right.

Figure 3-13. JPEG compression

2. Choose Size priority or Optimal quality. Figure 3-13 shows Optimal quality as the selected compression type.
3. Press the OK button to choose the compression type.

My Recommendation: I normally use Optimal quality when I shoot JPEGs since the whole JPEG concept is one of lossy image compression and I don't want the potentially heavier compression of Size priority to lower the image quality. Size priority just adds more potential lossiness, so I tend to avoid it. The only time I use Size priority is when I'm shooting what I call "party pics". When I'm at a party shooting snapshots of friends having a good time, I'm not creating fine art and will never make an enlargement greater than an 8 × 10 inches (20 × 25 cm). In that case, I don't worry about extra compression. In fact, I might just welcome it to avoid storing larger-than-needed images on my computer's hard drive. Using Size priority lets the camera use maximum compression to maintain its published JPEG compression ratios (fine = 1:4, normal = 1:8, and basic = 1:16). Your images may not have those precise compression ratios while using Optimal quality—especially with complex, detailed subjects.

NEF (RAW) Recording

(User's Manual: D300S page 70; D300 page 58)

NEF (RAW) recording is composed of two menu choices—Type and NEF (RAW) bit depth. Type is concerned with image compression, while bit depth deals with color quality. We'll look into both of these choices and see how our photography can benefit from them.

NEF (RAW) Type

In previous sections we discussed how JPEG files have different levels of compression that vary the size of a finished image file. NEF (RAW) also has compression choices, though not as many. The nice thing about the RAW compression methods is that they don't throw away massive amounts of image data like JPEG compression does. RAW is not considered a lossy format because the file stays complete, with virtually all the image data your camera captured.

One of the compression methods, called Compressed, is very slightly lossy. The other, Lossless compressed, keeps *all* the image data intact. Let's discuss how each of the available compression methods works.

There are three NEF (RAW) formats available, although you only see a single NEF (RAW) selection on the Image quality menu. Once you've selected NEF (RAW), you'll need to use Shooting Menu > NEF (RAW) recording > Type to select one of the three NEF (RAW) compression types:

▪ NEF (RAW) Lossless compressed	(20–40% size reduction)
▪ NEF (RAW) Uncompressed	(No compression – full file size)
▪ NEF (RAW) Compressed	(40–55% size reduction)

- ***NEF (RAW) Lossless Compressed*** – The factory default for the NEF (RAW) format is NEF (RAW) Lossless compressed. According to Nikon, this compression will not affect image quality since it's a reversible compression algorithm. Since Lossless compressed shrinks the stored file size by 20 to 40 percent—with no image data loss—it's my favorite compression method to use. It works somewhat like a ZIP file on your computer—it compresses the file but allows you to use it later with all the data still available.
- ***NEF (RAW) Compressed*** – Before the newest generation of cameras, including the D300(S), this mode was known as "visually lossless". The image is compressed and the size is reduced by 40 to 55 percent, depending on the amount of detail in the image. There is a small amount of data loss involved in this compression method. Most people won't be able to see the loss since it doesn't affect the image visually. I've never really seen any loss in my images using this method. However, I've read that some have noticed slightly less highlight detail. Nikon says that this is a non-reversible compression, so once you've taken an image using this mode, any small amount of data loss is permanent. If this concerns you, then use the Lossless compressed method discussed above. It won't compress the image quite as

much (20 to 40 percent) but is guaranteed by Nikon to be a reversible compression that in no way affects the image.

- ***NEF (RAW) Uncompressed*** – No compression is applied to the image. The main drawback to this mode is that your images will be quite large to store. Each will be in the 20-megabyte range, so it will take larger storage media to contain your images. With Lossless compressed available, I feel that this method is semi-obsolete. Nikon leaves it available for those who prefer it. However, why store a RAW file that's nearly twice as large when there's no benefit in doing so?

Here are the screens and steps to select one of the NEF (RAW) compression Types (see Figure 3-14):

Figure 3-14. RAW (NEF) recording

1. Select NEF (RAW) recording from the Shooting Menu and scroll to the right.
2. Select Type and scroll to the right.
3. Select one of the three compression methods from the Type menu.
4. Press the OK button to save your selection.

Card Capacity Reporting

Why does my memory card's remaining image capacity seem to stay the same in NEF Lossless compressed and Compressed modes as in Uncompressed mode? Shouldn't it show lots more capacity in compressed modes since they make the image smaller by 20 to 55 percent? The reason your camera does not show any increased image capacity on the Control panel in compressed modes is because the D300(S) has no idea how well it will be able to compress a particular image.

An image with a large amount of blank space, such as an expanse of sky, will compress a lot more efficiently than an image of a forest with lots of detail. The camera shows a certain amount of image storage capacity in NEF (RAW) modes—around 300 images with an 8-gigabyte card. You'll find that in the two compressed modes, the D300(S) does not decrease the image capacity by 1 for each picture taken as it does in Uncompressed mode.

This means that the camera will decrease the number of available images only every two or three shots, according to how well it was able to compress the images. When the card is full, it might have more than twice as many images stored as it initially reported that it could hold. Basically, your D300(S) deliberately under-reports storage capacity when you are shooting in either of the NEF (RAW) compressed modes.

My Recommendation: Since I shoot in Lossless compressed RAW most of the time, I'm concerned with maximum quality along with good storage capacity. The Lossless compressed

method makes the most sense to me. It gives me a file size close to half
of the Uncompressed setting's results. I haven't used Compressed much since Lossless compressed became available. Even thought I can't see any image quality loss, it bothers me that it is there, if only slightly. The extra 10 or 15 percent of extra compression is not worth the potential tiny data loss to me. If I were running out of card space and needed just a bit more but wanted to keep shooting RAW, I might consider changing to Compressed temporarily. Otherwise, it's Lossless compressed for me!

NEF (RAW) Bit Depth

NEF (RAW) bit depth is a special feature for those of us concerned with capturing the best color in our images. The D300(S) has three color channels, one for red, another for green, and the last one for blue. It combines those color channels to form all the colors you see in your images. You may have seen the acronym RGB in your camera study. RGB stands for red, green, blue—the three color channels. Let's talk about how bit depth, or the number of colors per channel, can make your pictures even better.

With the D300(S), you can select the bit depth stored in an image. More bit depth equals better color gradations. The default for the D300(S) is 12-bits, or 4,096 colors per RGB channel. Or you can switch it to 14-bits, or 16,385 colors per RGB channel (as shown in Figure 3-15). In lesser DSLR cameras, the color information is limited to 12-bits. If you do not fully understand what this means, take a look at **Channel and Bit Depth Tutorial** following this section. As mentioned above, the D300(S) has the following two bit depths

available: 12-bit (4,096 colors per channel) or 14-bit (16,385 colors per channel).

Here are the screens and steps to choose a NEF (RAW) bit depth (see Figure 3-15):

Figure 3-15. NEF (RAW) bit depth

1. Select NEF (RAW) recording from the Shooting Menu and scroll to the right.
2. Select NEF (RAW) bit depth and scroll to the right.
3. Select 12-bit or 14-bit from the NEF (RAW) bit depth menu.
4. Press the OK button to save your selection.

My Recommendation: Which bit depth setting is best? Well, I always use 14-bit because I want all the color my camera can capture, for the best pictures later. If you read my bit depth tutorial in the next section, you'll understand why I feel that way.
However, my style of shooting is nature oriented, so I am concerned with capturing every last drop of color I can.

However, there are some disadvantages to using the 14-bit mode. If you choose 14-bit, be aware that your camera's file sizes will be 1.3 times larger than they would have been in

12-bit. There is a lot more color information is being stored, after all.

There's another drawback to the 14-bit mode that some may find quite objectionable. The maximum frame advance rate in CH mode—continuous high on the Release mode dial—drops from the normal 6 or 7 frames per second to only 2.5 frames per second. It takes a lot more time to process all that extra color information. If you're a sports or action shooter, you might not want to use the 14-bit mode. If you're a nature shooter and don't need high-speed frame rates, 14-bit is best for the image.

Channel and Bit Depth Tutorial

What does all the 8-bit, 12-bit, and 14-bit talk mean? Why would I change my camera to 14-bit depth instead of the default 12-bit? Here is a short tutorial on bit depth and how if affects color storage in an image:

An image from your camera is an RGB image. RGB stands for red, green, blue. Each of the colors has its own "channel". There is a red channel (R), a green channel (G), and a blue channel (B).

If you're shooting in 12-bit mode, your camera will record up to 4,096 colors for each channel. So there will be up to 4,096 different reds, 4,096 different greens, and 4,096 different blues. Lots of color! In fact, almost 69,000,000,000 (69 billion) colors.

However, if you set your camera to 14-bit mode, instead of 4,096 different colors per channel, the camera can now store 16,384 different colors in each channel. Wow! That's quite a

lot more color—almost 4,400,000,000,000 (4.4 trillion) shades.

Is that important? Well, it can be, since the more color information you have available, the better the color in the image—if it has a lot of color. I always use the 14-bit mode, now that I have it available. That allows for smoother color changes when a large range of color is actually in the image. I like that!

Of course, once you save your image as a JPEG or TIFF, most of those colors are compressed, or thrown away. Shooting a TIFF or JPEG image in-camera (as opposed to a RAW image) means that the D300(S) converts from a 12- or 14-bit RGB file down to an 8-bit file. An 8-bit image file can hold 256 different colors per RGB channel—over 16,000,000 (16 million) colors.

There's a big difference between the number of colors stored in a RAW file and the number stored in an in-camera JPEG or TIFF. That's why I always shoot in RAW, so that later I can make full use of all those potential extra colors to create a different look for the same image, if I'd like.

If you shoot in RAW and later save your image in-computer as a 16-bit TIFF file, you can store all the colors you originally captured. The D300(S) will not create a 16-bit TIFF; it is limited to an 8-bit TIFF. However, if you shoot RAW, and in 14-bit, you can later save the file as a 16-bit TIFF and not lose any color information. A 16-bit file can contain 65,536 different colors in each of the RGB channels. Lots of people save their files as 16-bit TIFFs when post-processing RAW files. TIFF gives us a known and safe

industry-standard format that will fully contain all image color information from a RAW file.

It's important that you learn to use your camera's histogram so that you can visually examine the various RGB channels at a glance.

We'll discuss the histogram in an upcoming chapter titled **Chapter 9**. In the meantime, please look at Figure 3-16, which shows the histogram screen on your camera and its RGB channels.

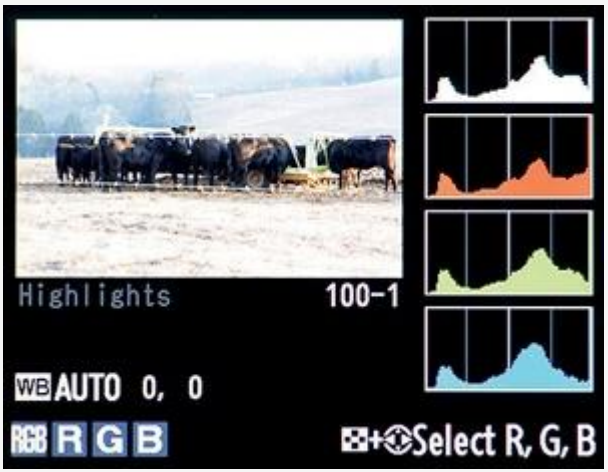


Figure 3-16. Histogram screen

We talked about this screen in the chapter titled **Chapter 2**. However, I wanted to tie this in here to help you understand channels better. The histogram tells the color amount and brightness for each of the RGB channels.

In Figure 3-16, you'll see four small colored histogram readings on the right side of the screen. The three on the

bottom represent the red, green, and blue color channels, as can easily be seen. The top, white histogram is not an additional channel. This is called a luminance histogram, and it represents an average histogram for the three channels. It is also known as a brightness histogram. In reality, even though all the color channels may influence the luminance histogram, most of its information comes from the green channel. Notice that they are almost identical.

In digital photography we must use new technology and learn lots of new terms and acronyms. However, by investing a little time to understand these tools, we'll become better digital photographers.

White Balance

(User's Manual: D300S page 134; D300 page 126)

White balance is designed to let you capture accurate colors in each of your camera's RGB color channels. Your images can reflect reality if you understand how to use the White balance settings.

This may be one of the most important things to learn about in digital photography. If you don't understand how white balance works, you'll have a hard time when you want consistent color across a number of images.

In this chapter, we are just going to look at white balance briefly—only showing how to select the various White balance settings. This is such an important concept to understand that I've included an entire chapter—titled **Chapter 10**—devoted to this subject. Please read that chapter very carefully. It is important that you learn to control the White balance settings well. A lot of what you'll be doing during in-computer post-processing requires a good understanding of white balance control.

Many people leave their cameras set to Auto White balance. This works fine, most of the time, since the camera is quite capable of rendering accurate color. However, it's hard to get exactly the same white balance in each consecutive picture when you are using Auto mode. The camera has to make a new white balance decision for each picture when in Auto. This can cause the white balance to vary from picture to picture.

For many of us this isn't a problem. However, if you are shooting in-studio for a product shot, I'm sure your client will want the pictures to be the same color as the product. White balance lets you control that carefully, when needed.

Here are the screens and steps to select a White balance setting (see Figure 3-17):

Figure 3-17. White balance screens

1. Select White balance from the Shooting Menu and scroll to the right.
2. Choose a White balance type, such as Auto or Flash, from the menu and scroll to the right.
3. As shown in Figure 3-17, image 3, you'll now arrive at the White balance fine-tuning screen. At this time, you can make an adjustment to how you want this White balance to record color by introducing a color bias toward green, yellow, blue, or magenta. You do this by moving the little black square in the middle of the color box toward the edges of the box in any direction. If you make a mistake, simply move the little black square back to the middle of the color box.
4. Once you have finished adjusting (or not) the colors, press the OK button to save your setting. Most of us will

just press the OK button as soon as we see the fine-tuning screen so as not to change the default settings for this particular White balance.

You'll also find it convenient to change the White balance settings by using external camera controls. We'll examine how next.

There are three steps used when changing White balance. Figure 3-18 shows the external camera controls used with the steps listed below:

Figure 3-18. Setting the White balance with external camera controls

1. Hold down the WB button above the Release mode dial (see Figure 3-18, image 1).
2. Turn the rear Main command dial as you watch the WB icons change on the Control panel (see Figure 3-18, image 2).
3. Release the WB button to lock in your choice.

My Recommendation: Until you've read the chapter in this book titled **Chapter 10**, I suggest that you leave the camera set to Auto White balance. However, please do take the time

to understand this setting by reading the dedicated chapter carefully. Understanding white balance is especially important if you plan on shooting JPEGs regularly.

Set Picture Control

(User's Manual: D300S page 154; D300 page 150)

Set Picture Control allows you to choose a Picture Control for a shooting session. Nikon's Picture Control system lets you control how your image appears in several ways. Each control has a specific affect on the image's appearance. If you ever shoot film, you know that there are distinct "looks" to each film type. No two films produce pictures that look the same, color-wise.

Well, in today's digital photography world, Picture Controls give you the ability to impart a specific look to your images. You can control Sharpening, Contrast, Brightness, Saturation, and Hue in a customizable way by modifying one of Nikon's regular Picture Controls. Or, you can simply use the provided Nikon Picture Controls to control your images. We'll discuss how to modify a Nikon Picture Control later in this section. In the next section we'll discuss how to save a modified Picture Control under your own Custom Picture Control name. You can create up to nine Custom Picture Controls.

I'll refer to Picture Controls included in the camera as Nikon Picture Controls, since Nikon does too. You may also hear them called Original Picture Controls. If you modify and save a Nikon Picture Control under a new name, it becomes a Custom Picture Control. I'll also use the generic name of Picture Control when referring to any of them.

The cool thing about Picture Controls is that they are shareable. If you tweak a Nikon Picture Control and save it under a name of your choice, you can then share your creation

with others. Compatible cameras, software, and other devices can use these controls to maintain the look you want all the way from the time you press the Shutter-release button until you print the picture using a program like Nikon Capture NX2.

Here are the screens and steps to choose a Picture Control from the Shooting Menu (see Figure 3-19):

Figure 3-19. Nikon Picture Controls

1. Select Set Picture Control from the Shooting Menu and scroll to the right.
2. Choose one of the Nikon Picture Controls from the Set Picture Control screen.
3. At this point, you can simply press the OK button and the control you've chosen will be available for immediate use. It will show up as a two-letter name in the Shooting Menu next to Set Picture Control. You'll see this in Figure 3-19, image 1, where NL shows to the right of Set Picture Control.

You can also modify the currently highlighted control by scrolling to the right, before pressing the OK button. This will bring you to the fine-tuning screen shown in Figure 3-19, image 3. You can adjust the Sharpening, Contrast, Brightness,

Saturation, and Hue settings by scrolling up or down to select a line and then right or left (+/-) to change the value of that line item. This is entirely optional.

If you do choose to modify the control, it is *not* yet a Custom Picture Control, since you haven't saved it under a new name.

Instead, it's merely a modified Nikon Picture Control.

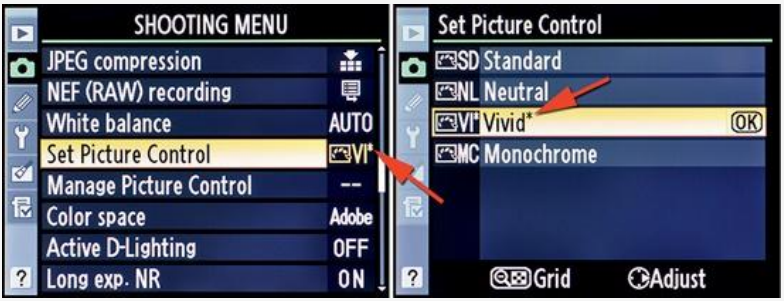


Figure 3-20. An adjusted Nikon Picture Control

We'll discuss how to name and save your own Custom Picture Controls in the upcoming section, Manage Picture Control.

Figure 3-20 shows an asterisk after the Vivid control (VI* - Vivid*) in both Shooting Menu screens (see red arrows). This asterisk appears after you have made a modification to any of the Picture Control's inner settings, such as Sharpening. The asterisk will go away if you set the control back to its factory default configuration.

If Sharpening, Contrast, and Brightness are grayed out, it means that your D300(S) has Active D-Lighting enabled. When enabled, Active D-Lighting takes over these three adjustment items and won't allow you to modify them. We'll

discuss Active D-Lighting in an upcoming section of this chapter. If you want to modify a Picture Control's Sharpening, Contrast, or Brightness settings, you'll need to set Active D-Lighting to Off. You can modify Saturation or Hue at any time.

Now, let's look closer at the Picture Control system. As shown in Figure 3-19, image 2, there are a series of Picture Control selections that modify how your D300(S) captures an image:

- SD, or Standard
- NL, or Neutral
- VI, or Vivid
- MC, or Monochrome

Each of these settings has a different and variable combination of the following settings:

- Sharpening
- Contrast
- Brightness
- Saturation
- Hue
- Filter effects (MC only)
- Toning (MC only)

You can select one of the controls (SD, NL, VI, or MC) and leave the settings as they are set at the factory, or you can modify the settings (see Figure 3-19, image 3) and completely

change how the D300(S) captures the image. If you are shooting in RAW mode, the D300(S) does not apply these settings to the image but stores them with the image so that you can later change them in-computer.

Let's examine each of the Picture Controls, and then we'll look at how to select them.

Examining Picture Controls

Figure 3-21 provides a look at the differences in color saturation and shadow with the various controls. Due to limitations in offset printing, it may be hard to see the variations. Saturation and Contrast depth increases within these Picture Control choices, in this order: NL (low) > SD (medium) > VI (high).

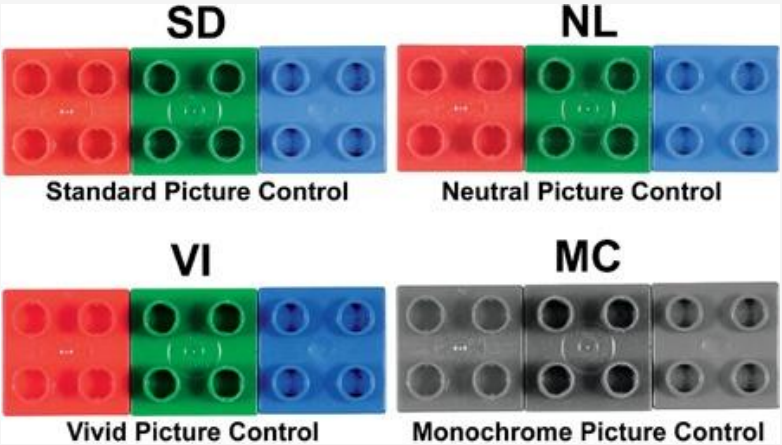


Figure 3-21. Sample color with various Nikon Picture Controls

Below is an overview of what Nikon says about Picture Controls and what I see in my sample image taken with the various controls. Also included in this list are two optional Picture Controls, which you can download from Nikon for free (PT, or Portrait and LS, or Landscape).

- SD, or Standard, is Nikon's recommendation for getting "balanced" results. They recommend SD for most general situations. Use this if you want a balanced image and don't want to post-process it to get it there. It has what Nikon calls Standard image processing. The SD control provides what I would call medium saturation, with darker shadows to add contrast. If I were shooting JPEG images in a studio or during an event, I would seriously consider using the SD control. I would compare this setting to Fuji Provia or Kodak Kodachrome 64 slide films.

- NL, or Neutral, is best for an image that will be extensively post-processed in the computer. It, too, is a balanced image setting, but it applies minimal camera processing so that you'll have room to do more with the image later, in the computer. The NL control is lower in color saturation and has weaker shadows, so the image will be less contrasty. The effects of the NL and SD controls are harder to see in the book since there's not a marked difference. However, the NL control will give you a little extra dynamic range in each image due to more open shadows and slightly less-saturated colors. If you've ever shot with Fuji NPS film or Kodak Portra negative films and liked them, you'll like this control.

- VI, or Vivid, is for the Fuji Velvia slide film lovers among us! This setting places emphasis on saturating

primary colors for intense imagery. The contrast is higher for striking shadow contrast, and the sharpness is higher too. If you are shooting JPEGs and want to try to imitate a saturated transparency film like Velvia, this mode is for you! If you look at the red block under the VI control in Figure 3-21, you'll see that it's pushed into deep saturation, almost to the point of oversaturation. Plus, the greens and blues are extra strong. That means your nature shots will look saturated and contrasty. Be careful when you are shooting on a high-contrast day, such as in direct summer sunshine. If you use the VI control then, you may find that your images are too high in contrast. It may be better to back off to the SD or NL control when shooting in bright sunshine. You'll need to experiment with this to see what I mean. On a cloudy or foggy, low-contrast day, when shadows are weak, you may find that the VI control adds pleasing saturation and contrast to the image.

- MC, or Monochrome, allows the black and white lovers among us to shoot natively in toned black and white. The MC control basically removes the color by desaturation. It's still an RGB color image, but the colors have become levels of gray. It does not look the same as black-and-white film, in my opinion. The blacks are not as deep, and the whites are a little muddy. To me, it seems that the MC control is fairly low contrast, and that's where the problem lies. Good black-and-white images should have bright whites and deep blacks. To get images like that from a digital camera, you'll have to manually work with the image in a graphics program like Photoshop. However, if you want to experiment with black-and-white photography, this gives you a good

starting point. There are two extra settings in the MC control that allow you to experiment with Filter effects and Toning. We'll look at these settings in the upcoming section called MC Picture Control Filter Effects and Toning. The MC control creates a look that is somewhat like Kodak Plus-X Pan negative film, with less deep blacks.

- PT, or Portrait, is an optional control that you can download at **http://nikonimglib.com/opc**. Nikon says that this control "lends a natural texture and rounded feel to the skin of portrait subjects". I've taken numerous images with the Portrait control and shot the same images with the Neutral control. The results are very similar. I'm sure that Nikon has included some software enhancements specifically for skin tones in this control, so I'd use this for portraits of people. The results from the Portrait control look a bit like smooth Kodak Portra (or Fuji NPS) negative film to me.

- LS, or Landscape, is an optional control that you can download at **http://nikonimglib.com/opc**. This control "produces vibrant landscape and cityscapes", according to Nikon. That sounds like the Vivid control to me. I shot a series of images using both the Landscape and Vivid controls and got similar results. Compared to the Vivid control, the Landscape control seemed to have slightly less saturation in the reds and a tiny bit more saturation in the greens. The blues stayed about the same. It seems that Nikon has created the Landscape control to be similar to, but not quite as drastic as, the Vivid control. In my test images, the Landscape control created smoother transitions in color. However, there

was so little difference between the two controls that you'd have to compare the images side by side to notice. Maybe this control is meant to be more natural than the super saturated Vivid control. It will certainly improve the look of your landscape images. I'd say the look of this control is somewhere between Fuji Provia and Velvia. You get great saturation and contrast, with emphasis on the greens of natural settings.

The last two Nikon Picture Controls (Portrait and Landscape) are not included on the camera from the factory. You have to download them from Nikon. You can then use the section titled **Manage Picture Control** to learn how to install the two optional controls.

First you'll need to download and copy them to a memory card that you will insert into the camera. Then, you'll use Shooting Menu > Manage Picture Control > Load/Save > Copy to camera to install the picture controls. We'll cover this fully in the upcoming **Manage Picture Control** section.

To show how much Nikon has invested in making these controls compatible with a wide variety of hardware and software, you might find it interesting that the same optional controls are compatible with these Nikon DSLRs: D300, D300S, D700, D3, D3X, D3S. They are also compatible with the following Nikon software: Capture NX 2 version 2.0.0 or later, Capture NX Version 1.3.4 or later, and ViewNX Version 1.1.0 or later.

MC Picture Control Filter Effects and Toning

The Monochrome, or MC, Picture Control has some added features that are enjoyable for those who love black-and-white photography. As shown in Figure 3-22, there are Filter effects that simulate the effect of Y-yellow, O-orange, R-red, and G-green filters on a monochrome image. Yellow, orange, and red (Y, O, R) change the contrast of the sky in black-and-white images. Green (G) is often used in black-and-white portrait work to change the appearance of skin tones. You don't have to go buy filters for your lenses; they're included free in your D300(S).

Figure 3-22. Monochrome Filter effects screen

Figure 3-23. Monochrome Filter effects samples

In Figure 3-23 you'll see an untouched sample of a color SD Picture Control (for comparison) alongside the five MC shades of Monochrome (black-and-white) Filter effects. The Filter effects are mildly different and are hard to see due to tone range limitations of a printed book. In my opinion, the Red effect seems to darken the sky and emphasize the wispy clouds a bit better.

The Filter effects settings are more pronounced than those you would achieve using a glass filter attached to your lens.

As displayed in Figure 3-24, there are also 10 variable Toning effects available—B&W (standard black and white), Sepia, Cyanotype, Red, Yellow, Green, Blue Green, Blue, Purple Blue, and Red Purple. Each of the Toning effects is variable within itself—you can adjust the saturation of the individual tones. In Figure 3-24, I cranked them all the way up to the maximum setting, which tends to oversaturate the toning color. I wanted you to clearly see the maximum potential in the Toning settings.

You can shoot a basic black-and-white image, use filters to change how colors appear, or tone the image in experimental ways. Can you see the potential for a lot of fun with these tones?

In Figure 3-24, notice that to the right of Toning, there is a row of 10 tiny rectangles with arrowhead pointers on each end. The first rectangle is half black and half white. That is the normal black-and-white (B&W) selection, and it has no extra toning. Next to that you'll see a golden-brown rectangle. That is the Sepia toning effect. To the right of that is the bluish Cyanotype effect. The smaller rectangles that follow the first three selections are the other available colors for toning. Each color has seven saturation settings available in the little green bar below (next to Blue Green, 4 in Figure 3-24). This
bar allows you to select the depth of saturation for each of the colors. Blue Green is set to the 4th saturation position in Figure 3-24, image 1.

Figure 3-24. Monochrome Toning screen and samples

Use the Multi Selector to move around in the Filter effects and Toning settings. Press the OK button to select one of them.

Picture Control Grid Screen

Each Picture Control has a Picture Control Grid that allows you to compare the selected control to the other Nikon Picture Controls (see Figure 3-25). You access the Grid by scrolling to the screen shown in Figure 3-22 and then holding down the Thumbnail/playback zoom out button.

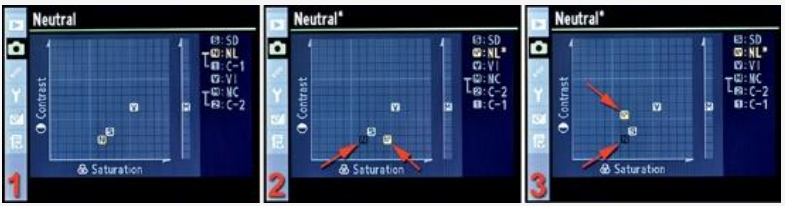


Figure 3-25. Picture Control Grid

When you make a modification to the Saturation or Contrast of a particular control, you'll see the position of that control change on the Picture Control Grid. Figure 3-25, image 1, shows a Picture Control Grid in its unchanged condition, with all controls set to factory default.

In Figure 3-25, image 2, I changed the Saturation. You can see how the N*—representing the modified Neutral setting—has moved from its starting location (red arrow on left) to its new location (red arrow on right). In Figure 3-25, image 3, you can see that I've changed the Contrast. The N* moved from the location at the bottom red arrow to its new location at the top red arrow.

The Picture Control Grid allows you to see how each control compares to the others, before and after you've made a change. Once a change has been made, you'll see a black

square that marks the original location of the control and a yellow square that marks its new location. The new location will have the same name as the previous location, except you'll see an asterisk after it.

Resetting a Nikon Picture Control

If you modify the Nikon Picture Controls, you may do what I did and forget what the original settings were when you want to change them back.

Worry not! Nikon has given us an easy way to reset a control. Any time you've modified a control, you can reset it by pressing the garbage can Delete button while you have the Picture Control adjustment screen open.

The adjustment screen is the one with the settings for things like Sharpening and Contrast (see Figure 3-19, image 3, or Figure 3-22).

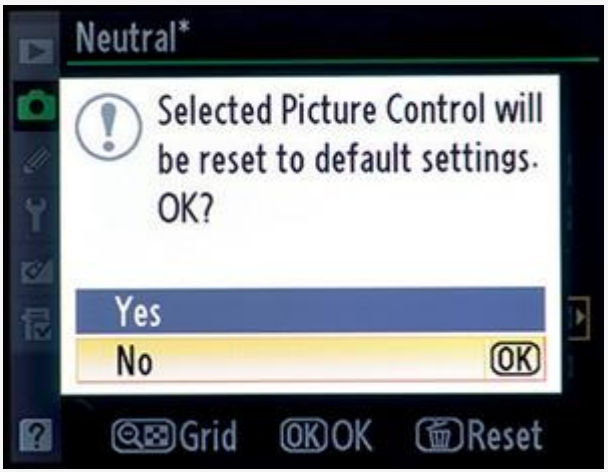


Figure 3-26. Reset control

When you press the Delete button while this screen is open, you'll see the screen in Figure 3-26 with its warning, *Selected Picture Control will be reset to default settings. OK?* Simply select Yes from the menu and press the OK button to reset the control.

Notes on Photoshop for Black-and-White Images

Since the RGB color channels are still intact in the camera's black-and-white image, you can use Photoshop's Channel Mixer (Image Menu > Adjustments > Channel Mixer...) to manipulate the color channels and improve the blacks and whites. If you use Photoshop to play with the channels, be sure to check the Monochrome box on the Channel Mixer window. If you don't, you'll simply add color back into your black-and-white image. The fact that you must check the Monochrome box proves that a D300(S) black-and-white image is really just a color image with the colors desaturated to levels of gray. The good thing about this is that you now have room to play with the three color channels similar to how you use filters when shooting black-and-white film. You can add or subtract contrast by moving the channel sliders until you are happy with the results. There is a lot of discussion of these techniques on the Internet. Why not join the Nikonians.org forum to discuss how to best achieve beautiful black-and-white images? Look for the Nikonians Gold Membership 50% off coupon in the back of this book.

As shown in Figure 3-27, there is an alternate way to access the Set Picture Control menu screens in the D300S. You can use the Information display edit screen by pressing the Info button twice, then scrolling to the Set Picture Control position and pressing the OK button. This opens directly into the Set Picture Control screen for your convenience.

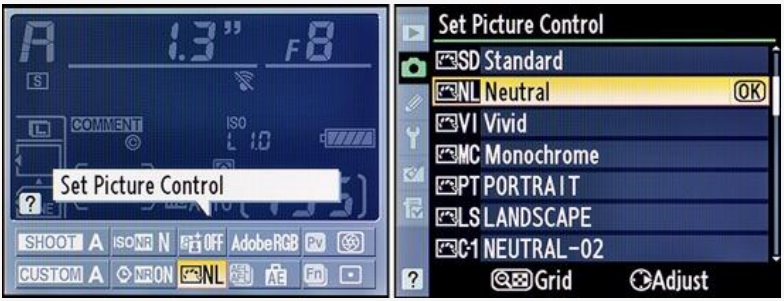


Figure 3-27. D300S Info. display edit screen – Set Picture Control

Manage Picture Control

(User's Manual: D300S page 160; D300 pages 156)

The Manage Picture Control section of your camera's Shooting Menu is designed to allow you to create and store Custom Picture Control settings for future use. If you modify them under the Set Picture Control section just before this one, you simply create a one-offsetting. If you'd like to go further and create your own named Custom Picture Controls, the D300(S) is happy to oblige.

There are four choices on the Manage Picture Control screen:

- Save/edit
- Rename
- Delete
- Load/save

Let's look at each of these four Picture Control managment settings.

Save/Edit a Custom Picture Control

There are six screens used to Save/edit a Nikon Picture Control (see Figure 3-28)—storing the results for later usage as a Custom Picture Control. Following are the steps to edit and save a Picture Control with a modified setting:

Figure 3-28. Save/edit a Custom Picture Control

1. Select Manage Picture Control from the Shooting Menu and scroll to the right (see Figure 3-28, image 1).
2. Highlight Save/edit and scroll to the right (see Figure 3-28, image 2).
3. Choose a Picture Control that you want to use as a base for your new settings and then scroll to the right (see Figure 3-28, image 3). I am modifying the Neutral Picture Control and will save it under a different name.
4. Make your adjustments to Sharpening, Contrast, etc. When you are done, press the OK button (see Figure 3-28, image 4).
5. Select one of the nine storage areas named C-1 to C-9 and scroll to the right (see Figure 3-28, image 5). They are all currently marked as Unused. I can save as many as nine different Custom Picture Controls here for later selection (Set Picture Control).

6. You now see the Rename screen, which works just like the other screens you've used to rename things. Type in a new name by selecting characters from the list at the top of the screen and pressing the Multi selector center button on the D300S—or the center of the Multi Selector on the D300—to choose the highlighted character (see Figure 3-28, image 6). To correct an error, hold down the Thumbnail/playback zoom out button and use the Multi Selector to move back and forth along the field that contains the new name.

7. Press the OK button when you have entered the name of your Custom Picture Control.

Your camera is now set to your Custom Picture Control. You switch between your custom controls and the basic Nikon Picture Controls by using Set Picture Control (see previous section titled Set Picture Control). In other words, each of your new named Custom Picture Controls will appear in the Set Picture Control menu for later selection.

Now, let's look at how to rename an existing Custom Picture Control.

Memory Cards and Custom Controls

If you take the time to look at the contents of your camera's memory card with your computer, once you've created a new Custom Picture Control, you'll find a new folder called NIKON with a sub-folder called CUSTOMPC. This folder contains any Custom Picture Controls you might have created, each with a filename ending in NCP. If you download Nikon's optional PORTRAIT and LANDSCAPE Picture Controls, you'll

find they have an ending of NOP and can be copied to the NIKON folder on your memory card for later uploading to the camera.

Rename a Custom Picture Control

If you decide to rename an existing Custom Picture Control, you can do so with the following screens and steps (see Figure 3-29):

1. Select Manage Picture Control from the Shooting Menu and scroll to the right (see Figure 3-29, image 1).
2. Select Rename from the Manage Picture Control screen and scroll to the right (see Figure 3-29, image 2).

Figure 3-29. Rename a Custom Picture Control

3. Select one of your Custom Picture Controls from the list (C-1 to C-9) and scroll to the right (see Figure 3-29, image 3). I selected to rename NEUTRAL-02. This is the Custom Picture Control I created under the Save/edit section.

4. You'll now be presented with the Rename screen. To create a different name, hold down the Thumbnail/ playback zoom out button and use the Multi Selector to scroll back and forth within the old name. When you have the small gray cursor positioned
over a character, you can delete that character with the garbage can Delete button. To insert a new character, position the yellow cursor in the character list above and press the Multi selector center button on the D300S or the center of the Multi Selector on the D300. The character that is under the yellow cursor will appear on the name line below, at the position of the gray cursor. If there is already a character under the gray cursor, it will be pushed to the right. Please limit the name to a maximum of 19 characters (see Figure 3-29, image 4).

5. Press the OK button when you have completed the new name. I renamed the Custom Picture Control previously named NEUTRAL-02, in Figure 3-29, to NEUTRAL-EXSHARP.

Note: You can have more than one control with exactly the same name in your list of Custom Picture Controls. The camera does not get confused because each control has a

different location—C-1 to C-9—to keep it separate from the rest.

When a Custom Picture Control is no longer needed, you can easily delete it.

Delete a Custom Picture Control

You cannot delete a base Nikon Picture Control (SD, NL, VI, or MC). They don't even appear in the Manage Picture Control menu.

However, you can delete one or more of your Custom Picture Controls by following these steps:

1. Select Manage Picture Control from the Shooting Menu and scroll to the right (see Figure 3-30, image 1).
2. Select Delete from the Manage Picture Control screen and scroll to the right (see Figure 3-30, image 2). You'll find up to nine controls listed in C-1 to C-9.

Figure 3-30. Delete a Custom Picture Control

3. Select one of the nine available Custom Picture Controls and scroll to the right (see Figure 3-30, image 3). I selected NEUTRAL-EXSHARP for deletion.

4. Choose Yes from the Delete menu (see Figure 3-30, image 4).

5. Press the OK button and the Custom Picture Control will be deleted from your camera.

Now, let's move to our last menu selection from the Manage Picture Control screen, Load/save.

Load/Save a Custom Picture Control

There are three parts to the Load/save function. These allow you to copy Custom Picture Controls to and from the memory card or delete them from the card.

When I mention copying or deleting controls from the memory card, I'm speaking of the primary card slot on the D300S and, of course, the one CF card that the D300 uses. You cannot copy or delete controls from the secondary card slot on the D300S. There are three selections on the Load/save menu, as shown in Figure 3-31, image 3:

Figure 3-31. Load/save a Custom Picture Control

- Copy to camera – Loads Custom Picture Controls from the memory card into your camera. You can store up to nine controls in your camera's nine available memory locations (C1–C9).
- Delete from card – Displays a list of any Custom Picture Controls found on the memory card. You can selectively delete them.
- Copy to card – Allows you to copy your carefully crafted Custom Picture Controls from your camera to a memory card. You can then share them with others. The camera

will display up to 99 control locations on any single memory card.

Let's examine each of these selections and see how to best use them.

Copy to Camera

Once you've transferred a Custom Picture Control from your memory card to your camera, it will show up in the Shooting Menu > Set Picture Control menu.

Here are the screens and steps to copy a control from the memory card to the camera itself (see Figure 3-32):

Figure 3-32. Custom Picture Control – Copy to camera

1. Figure 3-32, image 1 continues from the last screen shown in Figure 3-31 (Load/save on the Manage Picture Control menu). Choose Copy to camera and scroll to the right.
2. You'll be presented with the list of controls that are currently on the memory card (see Figure 3-32, image 2). If there are no controls on the memory card, the camera will display a screen that says, *No Picture Control file found on memory card.* Figure 3-32, image 2, shows two controls—NEUTRAL-02 and

NEUTRAL-03. Select a control from the list and press the OK button. (If you scroll to the right instead, you will be able to examine and adjust the control's settings before saving it to your camera. If you don't want to modify it, simply press the OK button.)

3. You will now be shown the Manage Picture Control > Save as menu, which lists any Custom Picture Controls already in your camera (see Figure 3-32, image 3). Select one of the Unused memory locations and press the OK button.

4. You'll now be presented with the Rename screen, just in case you want to change the name of the Custom Picture Control. If you don't want to change the name, simply press the OK button, and the custom control will be added to your camera's Set Picture Control menu. It's okay to have multiple controls with exactly the same name. The camera keeps each control separate in its list of controls. However, I always rename them to prevent future confusion. Renaming is fairly easy!

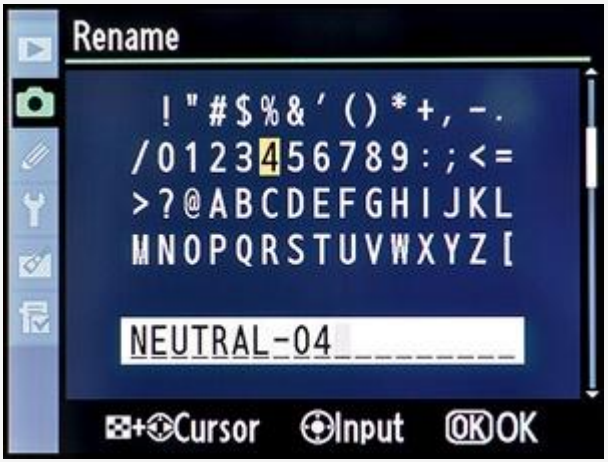


Figure 3-33. Rename Control

To create a different name, hold down the Thumbnail/ playback zoom out button and use the Multi Selector to scroll back and forth within the old name. Once you have the small gray cursor positioned over a character, you can delete it with the garbage can Delete button. To insert a new character, position the yellow cursor in the character list above and press the Multi selector center button on the D300S or the center of the Multi Selector on the D300. The character that is under the yellow cursor will appear on the name line below, at the position of the gray cursor. If there is already a character under the gray cursor, it will be pushed to the right. Please limit the name to a maximum of 19 characters. Press the OK button when you've completed the new name.

You can also create Custom Picture Controls in programs like Nikon Capture NX2, which uses its Picture Control Utility, and load them into your camera using the preceding steps.

Loading Nikon's Optional Picture Controls (Portrait and Landscape) **–** To test your newfound knowledge of Custom Picture Control management, why not download Nikon's optional Picture Controls and install them in your camera?

Here are the screens and six steps to do so (see Figure 3-34):

Figure 3-34. Loading Nikon's optional picture controls

1. Download Nikon's optional PORTRAIT (PT) and LANDSCAPE (LS) Picture Controls and installation instructions from the following web addresses:

   - Get the optional Picture Controls here:

     http://nikonimglib.com/opc/

   - Microsoft Windows Installation Instructions:

     http://www.nikonimglib.com/opc/manual/en/opc_win_en_ABF.html

   - Apple Macintosh Installation Instructions:

     http://www.nikonimglib.com/opc/manual/en/opc_mac_en_ABF.html

2. The installation instructions that you've downloaded will explain how to get the optional Picture Control files (ending in .nop) into a folder called NIKON on your

camera's memory card. Once they are there, the camera can see and install them.

3. Referring to Figure 3-34, image 1 (which continues from Figure 3-31), select Copy to camera from the Load/save menu and scroll to the right.

4. If you've installed both controls onto the memory card, you'll see PORTRAIT and LANDSCAPE showing in the Copy to camera menu (see Figure 3-34, image 2).

5. Press the OK button and the camera will present you with four special slots evidently made for future Nikon Picture Controls—not your own Custom Picture Controls, which have their own C1-C9 memory locations in the camera, as shown
in Figure 3-32, image 3. (If you scroll to the right instead of pressing the OK button, you will be able to examine and adjust the optional Picture Control's settings before saving it to your camera. If you don't want to modify it, simply press the OK button.)

6. The Save as menu will now appear. Select one of the four Unused slots and press the OK button. The optional PT or LS Picture Control will be entered there and will also be added to the Shooting Menu > Set Picture Control list for future use.

Delete from Card

Once you've finished loading Custom Picture Controls or optional Nikon Picture Controls to your camera, you may be ready to delete a control or two from the memory card. You

could format the memory card, but that will blow away all images and Picture Controls on the card.

A less drastic method that allows you to be more selective in removing Picture Controls is the Delete from card function. Here are the screens and steps used to remove Picture Controls from your camera's memory card (see Figure 3-35):

Figure 3-35. Custom Picture Control – Delete from card

1. Figure 3-35 continues where Figure 3-31 left off. Choose Delete from card from the Load/save menu and scroll to the right (see Figure 3-35, image 1).

2. Choose one of the Custom Picture Controls that you want to delete (see Figure 3-35, image 2). I chose the only one I had on the card at that time, NEUTRAL-02. You can confirm that you are deleting the correct control by scrolling to the right, which gives you the fine-tuning screen with current adjustments for that control. If you are sure that this is the control you want to delete, move on to the next step by pressing the OK button.

3. You will be shown the Delete from card screen, which asks, *Delete Picture Control?* Choose either Yes or No (see Figure 3-35, image 3). If you choose Yes, the Picture Control will be deleted from the memory card. If you choose No, you will return to the previous screen.

4. Press the OK button to execute your choice.

Copy to Card

After you create up to nine Custom Picture Controls using the instructions in the last few sections, you can then use the Copy to card function to save them to a memory card. Once they are on a memory card, you can share your custom controls with friends who have compatible Nikon cameras.

As soon as your Custom Picture Controls are ready to go, use the following screens and steps to copy them to a memory card (see Figure 3-36):

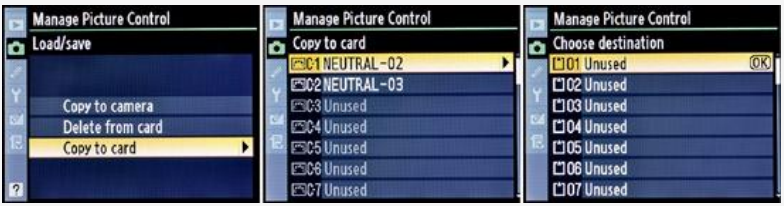


Figure 3-36. Custom Picture Control – Copy to card

1. Figure 3-36 continues where Figure 3-31 left off. Choose Copy to card from the Load/save menu and scroll to the right (see Figure 3-36, image 1).
2. Select one of your current Custom Picture Controls from the Copy to card menu and scroll to the right (see Figure 3-36, image 2).
3. Now you'll use the Choose destination menu to select where you want to save the custom control (see Figure 3-36, image 3). You have 99 choices for where to

place the control on the card. Select any Unused location.

4. Press the OK button and you'll briefly see a screen that says, *Data saved to memory card.* Your Custom Picture Control is now ready to distribute to the world or load onto another of your compatible Nikon cameras.

My Recommendation: To help you understand Nikon Picture Controls even better, please download and read the following PDF file from Nikon: **http://imaging.nikon.com/products/imaging/lineup/picturecontrol/catalog/PicCon.pdf**.

This PDF file describes Picture Controls—with lots of pictures—to help you see the range of control you can achieve. It even covers the optional PT and LS controls. It's a 13-page, 4.6 MB file named **PicCon.pdf**. I really enjoyed reading it since it explains Nikon Picture Controls well and even mentions software that will work with them. You'll need Adobe Reader, which you can download for free from **www.Adobe.com**, to read PDF files.

If any of the website links listed in this chapter give you problems, please contact me via the Contact link at **www.YoungImaging.com** for assistance.

Color Space

(User's Manual: D300S page 166; D300 page 169)

Color spaces are an interesting and important part of digital photography. They help your images fit into a much broader range of imaging devices. Software, printers, monitors, and other devices recognize which Color space is attached to your image and use it, along with other color profiles, to help balance the image to the correct output colors for the device in use. The two color spaces available on the Nikon D300(S) have different gamuts, or ranges of color.

Figure 3-37. Choosing a Color space

The Nikon D300(S) offers these two color spaces: sRGB and Adobe RGB. Here's how to select your favorite color space (see Figure 3-37 and Figure 3-38):

1. Choose Color space from the Shooting Menu and scroll to the right.
2. Select the Color space that you want to use, keeping in mind that Adobe RGB has a larger color gamut.

3. Press the OK button to lock in your choice.

The D300S also allows you to access the Color space settings via the shortcut Information display edit screen. You simply press the Info button twice and select the color space location, then press the OK button (see Figure 3-38). The second Color space screen in Figure 3-38 is the same as in Figure 3-37, image 2, and is adjusted by steps 2 and 3 outlined above.

Figure 3-38. D300S Info. display edit screen – Color space

Adobe RGB uses colors from a broader selection of the total color range—it has a wider gamut. So, if you are taking images that might later be printed, Adobe RGB is often the best color space to use (see the sidebar **Which Color Space Is Best—Technically?**).

Once a JPEG file is created, in the camera or computer, both Adobe RGB and sRGB's color gamut are compressed into the same number of color levels. A JPEG has only 256 levels for each of its red, green, and blue (RGB) channels. However, since the Adobe RGB color space takes its colors from a wider spectrum, you will have a better representation of reality when there are lots of colors in your image.

If you shoot in RAW format a lot, you may want to consider using Adobe RGB to store the maximum number of colors in your image files for later reuse. Remember that a NEF (RAW) image file can contain 4,096 levels of color per RGB channel in 12-bit mode and 16,385 levels in 14-bit mode—instead of the 8-bit JPEG's 256 levels. Using Adobe RGB makes a lot of sense in NEF (RAW) mode because of its capacity to contain more colors as a base storage medium.

There are some drawbacks to using Adobe RGB, though. The sRGB color space is widely used in printing and display devices. Even many local labs print using sRGB because so many point-and-shoot digital camera users bring their pictures to them in that format. If you try to print directly to some inkjet printers using the Adobe RGB color space, the colors may not be as brilliant as with sRGB. If you aren't going to modify your images in-computer and plan on printing them directly from your camera, you may want to use sRGB. If you shoot only JPEGs for computer display or Internet usage, it might be better to stay with sRGB for everyday shooting.

If you are a RAW shooter and regularly post-process your images, you should consider using Adobe RGB. You will have a wider gamut of colors to work with and can make your images the best they can be. Later, you can convert your carefully crafted images to print with a good color profile and get great results from inkjet printers and other printing devices. So, here's a rough way to look at it:

- Many JPEG shooters use sRGB.
- Many RAW shooters use Adobe RGB.

This is not a hard and fast rule, but many people use these settings according to their style of shooting.

My Recommendation: I personally use Adobe RGB most of the time since I shoot a lot of nature with a wide range of color. I want as accurate color as my camera will give me. Adobe RGB has a wider range of colors, so it can be more accurate when a wide
range of colors is present in my subject. However, if you are just shooting JPEG snapshots, there's no need to worry about this. Leave the camera set to sRGB and have fun.

Which Color Space Is Best—Technically?

There is a large color space used by the graphics industry called CIELAB. This particular color space is designed to approximate human vision. Adobe RGB covers about 50 percent of the CIELAB color space, while sRGB only uses 35 percent. In other words, Adobe RGB has a wider gamut. That means Adobe RGB gives your images access to significantly higher levels of color, especially cyans (bluish) and greens. Another important consideration for those who will be sending their work to companies that use offset printing—such as book and magazine publishers—is that Adobe RGB maps very well to the CMYK offset printing process. If you are shooting commercial work, you may want to seriously consider Adobe RGB. Stock photo shooters are nearly always required to shoot in Adobe RGB.

Active D-Lighting

(User's Manual: D300S page 164; D300 page 167)

Active D-Lighting is used to help control contrast in your images. Often, the range of light around our subject is broader than our camera's sensor can capture. Where the D300(S) might be able to capture 6 or 7 EV steps of light, the brightness out in the world on a sunny summer day might equal 12 stops in range. The contrast is too high!

Since the camera often cannot grab the full range of light—and most people use the histogram to expose for the highlights (we'll discuss how in a later chapter)—some of the image detail will be lost in the shadows. The D300(S) allows you to "D-Light" the image and bring out additional shadow detail, or in other words, lower the image contrast. Active D-Lighting has these settings:

- Auto (D300S only)
- Extra High (D300S only)
- High
- Normal
- Low
- Off (no Active D-Lighting)

Those who are familiar with Nikon Capture NX2 may know how Active D-Lighting works since you can use it to bring up lost shadow detail, but at the expense of adding noise in the darker areas that are recovered. Here are the screens and steps

to choose an Active D-Lighting level (see Figure 3-39 and Figure 3-40):

Figure 3-39. Choosing Active D-Lighting's level

1. Choose Active D-Lighting from the Shooting Menu and scroll to the right.
2. Select one of the Active D-Lighting levels. Refer to Figure 3-40 to see how those levels affect the image.
3. Press the OK button to save your setting.

Figure 3-40. D300S Info. display edit screen – Active D-Lighting

As with some other important functions, the D300S adds access to the Active D-Lighting setting through the Information display edit screen (see Figure 3-40). Simply press the Info button twice, select the Active D-Lighting position, press the OK button, and then use steps 2 and 3.

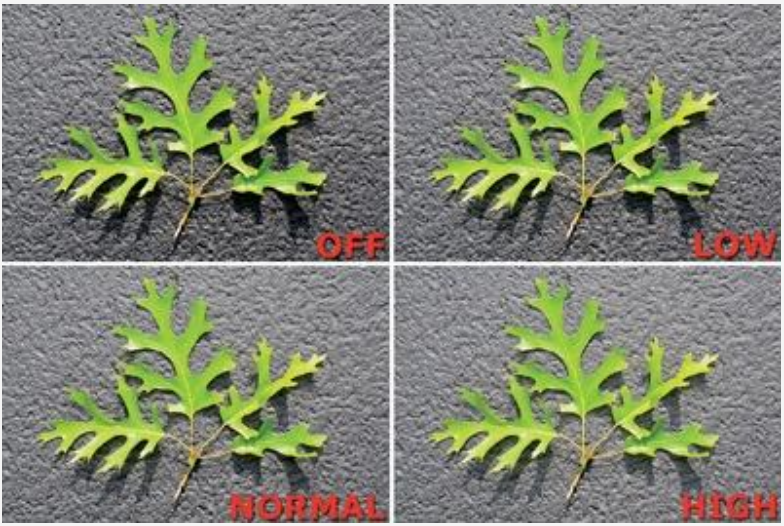


Figure 3-41. Active D-Lighting samples

Basically, Active D-Lighting will bring out detail in areas of your image that are hidden in shadow due to excessive image contrast. It also tends to protect the highlights from blowing out, or becoming pure white with no detail. Figure 3-41 shows a series of four images with Active D-Lighting set to its various levels. Note that the D300S provides two more levels than the D300.

My Recommendation: You'll need to experiment with the Active D-Lighting settings to see which you like best. It has the effect of lowering contrast, and some people do not like

low-contrast images. Also, anytime you recover lost detail from shadows, there will be extra noise in the recovered areas. So watch the noise!

This function can be useful for JPEG shooters in particular. Since you really shouldn't modify a JPEG file after shooting it, it's important that the image is created exactly right in the first place. When you are shooting in a contrasty setting, such as in direct sunlight, some degree of Active D-Lighting may help reign in the contrast.

If you set Active D-Lighting much above Normal, the image will start to have an artificial look, in my opinion. Skin tones can develop a pinkish look that is unnatural, in my eyes.

If you shoot in RAW, there's not much point in using Active D-Lighting at all since you will be post-processing your images in-computer. I leave it set to Off for the Shooting menu banks that use NEF (RAW) mode and On for the banks that use JPEG. Normally, I don't go much above the Low setting, except for party JPEGs, which I set to Normal. My best JPEGs are set to Low.

Remember, your camera has multiple Shooting menu banks, and you can set Active D-Lighting for each bank in a different way and then select the most appropriate bank for the job.

Use Auto mode when you're shooting JPEGs and don't have time to fool with camera settings yet you must get the shot, no matter what. Auto lets the camera decide the appropriate level of Active D-Lighting according to the ambient light and contrast in the image.

Experiment with this by shooting images in a high-contrast and a low-contrast setting at all the various levels of Active D-Lighting. You'll see how the camera reacts and can better decide how you'll use this functionality.

Long Exp. NR

(User's Manual: D300S page 258; D300 page 262)

Long exp. NR (Long Exposure Noise Reduction) is designed to combat visual noise in long exposures. Noise is that ugly, grainy look the image has when it's underexposed and then brightened or when a really high ISO sensitivity setting is used. If you ever shoot film, you'll remember how faster films have lots more grain. Well, noise is like that, except uglier. It's the digital equivalent of static in music. Who wants static in their images?

Nikon knows its imaging sensors well, and feels that images taken at exposures longer than 8 seconds may exhibit more noise than is acceptable for normal use. The imaging sensor can start to warm up a little when longer exposures are used. This causes a condition called amp noise, in which warmer sections of the imaging sensor start to display more noise than other sections.

There are two settings for Long Exposure Noise Reduction (Long exp. NR), as shown in Figure 3-43.

- ***On:*** When you select On, and the exposure goes over 8 seconds, the camera will take two exposures with the exact same time for each. The first exposure is the normal picture-taking exposure. The second is a black frame subtraction exposure, in which an image is made for the same length of time as the first one, but with the shutter closed. The noise in the black frame image is examined and then subtracted from the original image. It's really quite effective and beats having to blur the

image to get rid of noise. I've taken exposures of around 30 seconds and had perfectly usable results. The only drawback is that the exposure time is
doubled since two images are taken. The black frame image is not written to the memory card, so you'll only have one image, with much less noise, in the end.

While the black frame image is being processed, the words Job nr will blink on the Control panel and in the Viewfinder. During this second exposure, while Job nr is flashing, you cannot use the camera. If you turn it off while Job nr is flashing, the camera still keeps the first image; it just doesn't do any noise reduction on it.

If Long exp. NR is set to On, the frame advance rate may slow down a little in Continuous release mode and the capacity of the in-camera memory buffer will drop, usually by one image.

- ***Off:*** If you select Off, then you will have no long exposure noise reduction with exposures above 8 seconds.

Figure 3-42 is a sample image I took with a 30-second exposure and Long exp. NR set to On. I left the shutter open for 30 seconds at a time hoping to catch a lightning strike in a storm near my home. The camera used the Long exp. NR's black frame subtraction method to remove noise from my lighting strike image, without seriously blurring the image in the process.

Figure 3-42. Long exp. NR sample image

It can be a lot of fun to capture lightning images, but be sure that you have a safe place to shoot from so that you won't attract the lightning. I was shooting from
my upstairs bedroom window. The camera was on a tripod with its wide-angle lens looking out the open window. I got four or five nice lightning shots for my efforts—such as the one shown.

Figure 3-43. Enabling or disabling Long exp. NR

Here are the steps to choose a Long exp. NR setting. See the screens in Figure 3-43 or Figure 3-44. The Information edit display screen for the D300S only is shown in Figure 3-44.

1. Choose Long exp. NR from the Shooting Menu and scroll to the right.
2. Select either On or Off.
3. Press the OK button to save your setting.

The D300S allows you to access the Long exp. NR setting quickly by using the Information display edit screen.

Press the Info button twice, select the Long exp. NR position, press the OK button, and then use steps 2 and 3 above. Figure 3-44's second screen is the same as Figure 3-43's second screen.

Figure 3-44. D300S Info. display edit screen – Long exp. NR

My Recommendation: I personally like the benefits of Long exp. NR. I shoot a lot of waterfall and stream shots where I need exposures longer than 8 seconds to really blur the water. Also, I like to take midnight shots of the sky, and even shots of city scenes at night. Even though it may slow down the frame rate slightly and give me one less image in the in-camera memory buffer, I still use it most of the time.

If I were a sports or action shooter using Continuous release mode, I may leave Long exp. NR set to Off. It's unlikely I would be using exposures longer than 8 seconds, and I would want maximum frames per second as well as the ability to cram as many images into the camera buffer as possible. I wouldn't want my camera to slow down while writing images to the memory card.

Your style of shooting will govern whether this function is useful to you. Ask yourself one simple question, "Do I often shoot exposures longer than 8 seconds?" If so, you may want Long exp. NR set to On. Compare how the images look with and without it. I think you'll like Long exp. NR.

High ISO NR

(User's Manual: D300S page 259; D300 page 263)

High ISO NR (High ISO Noise Reduction) lessens the effects of visual digital noise in your images when you use ISO sensitivity (exposure gain) settings above ISO 800.

Have you ever tried to watch TV while children are playing in the same room? The louder you turn the TV, the louder the kids get, it seems. However loud the volume of the TV, the children laughing and running around degrade the pure TV sound you desire. There is a high child-to-TV noise ratio that interferes with your enjoyment of the program you are watching. After a while, you figure out that there is a point when you simply have to ask the kids to leave the room. Turning up the TV just makes them get louder and louder to overcome the TV sound.

Figure 3-45. High ISO NR sample images

Noise in a digital image is somewhat similar. You want pure, clean images when you take pictures, but instead, you have some digital noise interfering with the clarity. The higher you turn the camera's ISO sensitivity, the more the grainy digital noise degrades your image. The noise-to-signal ratio can become damaging to the picture. How can you make the visual noise go away? Use High ISO NR, that's how!

The D300(S) has better noise control than most cameras, so it's able to shoot up to ISO 800 with little noise. However, no digital camera is completely without noise (that I know of), so it's a good idea to use some noise reduction above a certain level of ISO sensitivity.

With the D300(S), the ISO can go up to 800 without producing much noise. After that, you must choose to allow or disallow High ISO NR (High ISO Noise Reduction). Here are the selections:

- High
- Normal
- Low
- Off

For any of these settings, except Off, High ISO NR will be performed starting at ISO 800. You'll need to shoot some high ISO exposures and decide for yourself whether you are comfortable with High, Normal, Low, or even Off.

Figure 3-45 shows a sample image taken at ISO 3200 with High ISO NR set to Off. I then took the same image at Low, Normal, and High settings.

High ISO NR works by blurring the image more and more as you change the setting from Low to High. By blurring the image, you blend the grainy noise into its surroundings and reduce the appearance of noise in the image. A variable amount of mild resharpening is applied to restore some image sharpness. This whole process tends to make the image lose detail as noise reduction is turned to higher levels.

Even if you set High ISO NR to Off, the camera will still apply NR when you exceed ISO 3200 (Hi 0.3 to Hi 1). The official starting point for forced High ISO NR is Hi 0.3, which is between ISO 3200 and 6400 (Hi 1), with Hi 0.3 being one-third stop above 3200 (about ISO 4250). There are two other one-third stop levels above Hi 0.3, namely Hi 0.7 (about ISO 5400) and Hi 1 (about ISO 6400).

Figure 3-46. High ISO NR choices

Here are the steps to choose a High ISO NR setting (see the screens in Figure 3-46):

1. Choose High ISO NR from the Shooting Menu and scroll to the right.
2. Select one of the noise reduction levels: Low, Normal, High, or Off.
3. Press the OK button to save your setting.

The D300S allows you to control the High ISO. NR function by using the Information display edit screen.

Press the Info button twice, select the High ISO NR position, press the OK button, and then use steps 2 and 3. Figure 3-46's second screen is the same as Figure 3-47's second screen.

Figure 3-47. D300S Info. display edit screen – High ISO NR

My Recommendation: I leave High ISO NR set to Low. I do want some noise reduction at levels above ISO 800. However, since any form of noise reduction blurs the image, I don't go too far with it. Of course, I shoot RAW, so it really makes no difference since I can change everything later in the computer. If I were shooting JPEG, it would make a serious difference.

Why not test a few images at high ISO sensitivity settings above ISO 800 with High ISO NR turned On? You may like the output of High, or you may prefer Normal or Low. Remember that you can set this differently for each Shooting menu bank since your camera will be configured for different shooting styles.

Note: If you have High ISO NR turned On, your in-camera memory buffer for images shot in Continuous release mode will decrease by at least one image.

ISO Sensitivity Settings

(User's Manual: D300S page 96; D300 page 96)

ISO sensitivity settings are provided to give you control over the light sensitivity of the imaging sensor, including whether you manually control it or the camera sets it automatically.

An ISO sensitivity number, such as 200 or 3200, is an agreed-upon sensitivity for the image-capturing sensor. Virtually everywhere one goes in the world, all camera ISO numbers will mean the same thing. With that fact being established, camera bodies and lenses can be designed to take advantage of the ISO sensitivity ranges they will have to deal with. Standards are good!

In the D300(S), the ISO numbers are sensitivity equivalents. To make it very simple, ISO sensitivity is the digital equivalent of film speed. The higher the ISO sensitivity, the less light needed for the exposure. A high ISO setting allows higher shutter speeds and smaller apertures.

In Figure 3-48 we see the external camera controls used to change the ISO sensitivity on the D300(S).

Figure 3-48. External controls to set ISO manually

This is a good way to adjust ISO sensitivity quickly. This is also the easiest method to change the camera's ISO sensitivity setting, although it doesn't involve the Shooting Menu, which we are now examining.

Here are the steps you'll use to manually adjust the camera's ISO sensitivity:

1. Hold down the ISO button above the Release mode dial.
2. Rotate the rear Main command dial counter-clockwise to increase ISO sensitivity or clockwise to decrease sensitivity. The ISO sensitivity number will show on the Control panel and in the Viewfinder.

Setting the ISO Sensitivity Settings

You can also use Shooting Menu > ISO sensitivity settings to change the camera's ISO sensitivity. Figure 3-49 shows the three screens used select your favorite ISO sensitivity for the circumstances in which you find yourself.

Notice in image 3 of Figure 3-49 that you have a scrollable list of ISO sensitivity settings, from Lo 1 (~100 ISO) to Hi 1 (~6400 ISO). The "normal" ISO range for the D300(S) is ISO 200 to 3200. Select your needed ISO sensitivity from the list of available ISO sensitivity settings.

Here are the screens and steps to select an ISO sensitivity setting (see Figure 3-49):

Figure 3-49. Setting ISO sensitivity from the Shooting Menu

1. Choose ISO sensitivity settings from the Shooting Menu and scroll to the right (see Figure 3-49, image 1).
2. Select ISO sensitivity from the menu and scroll to the right.
3. Scroll up or down in the ISO sensitivity menu until you highlight the ISO value you want to use.
4. Press the OK button to save the ISO sensitivity setting.

The standard minimum ISO sensitivity for the D300(S) is ISO 200. You may adjust the camera in a range from ISO 100–6400, in one-third steps. You can set Custom setting b1 to 1/3, 1/2, or 1 step. We'll look at this more carefully in the upcoming chapter titled **Chapter 4**.

Select your favorite ISO sensitivity setting, using either the external camera controls or the Shooting Menu's ISO sensitivity settings function. If you'd like, you can simply let your camera decide which ISO it would like to use. Let's consider this often-misunderstood feature in detail.

ISO Sensitivity Auto Control (ISO-AUTO)

You may have noticed in Figure 3-49, image 2, that there's another setting available, ISO sensitivity auto control, which defaults to Off. This was known on earlier Nikon cameras as ISO-AUTO.

This setting allows the camera to control the ISO sensitivity and shutter speed according to the light levels sensed by the camera. In Figure 3-50 we see the Shooting Menu screens used to enable the ISO sensitivity auto control.

Figure 3-50. Enabling the ISO sensitivity auto control

Once you've set ISO sensitivity auto control to On, you should immediately set two values, according to how you shoot: Maximum sensitivity and Minimum shutter speed.

Maximum Sensitivity

The Maximum sensitivity setting is a safeguard for you (see Figure 3-51). It allows the camera to adjust its own ISO sensitivity from the minimum value of ISO 200 to the value set in Maximum sensitivity according to light conditions. The camera will try to maintain the

lowest ISO sensitivity it can to get the picture. However, if needed, it can rapidly rise to the Maximum sensitivity level. This setting overrides the normal ISO sensitivity settings.

If you would prefer that the Maximum sensitivity not exceed a certain ISO value, simply select from the list shown in Figure 3-51, image 3. The Maximum sensitivity default is ISO 3200. That's too high for my taste, since it will let the camera take the ISO sensitivity all the way up to ISO 3200 in a low-light situation. Too much noise potential for me! Maybe not for you? In any case, I set my camera's Maximum sensitivity to ISO 400, as shown in Figure 3-51, image 3.

Figure 3-51. ISO sensitivity auto control – Maximum sensitivity

You'll note that there are only five available settings: 400, 800, 1600, 3200, and Hi 1. The Maximum sensitivity setting you choose is the maximum ISO value the camera will use to get a good exposure when the light drops.

Interestingly, Custom setting b1 does not control the incremental ISO numbers between these primary values. I carefully set up my D300S to test this and found that it would often use an intermediate value like ISO 640, 1100, 1250, 2000, or 2200 as the light got darker and darker. It did this whether I set Custom setting b1 to 1/3, 1/2, or 1 EV step. Just

remember that you have a maximum range from ISO 400 to Hi 1 (ISO 6400), and the EV steps in between these two values are decided by the camera.

What happens when the camera reaches its Maximum sensitivity and there still isn't enough light for a good exposure? Let's find out.

Minimum Shutter Speed

Since shutter speed helps control how sharp an image can be, depending on camera shake and subject movement, you'll need some control over the minimum shutter speed allowed while the ISO sensitivity auto control is set to On (see Figure 3-52).

Figure 3-52. ISO sensitivity auto control – Minimum shutter speed

The Minimum shutter speed setting allows you to select the minimum shutter speed that the camera will allow when the light diminishes. In P – Programmed auto (camera controls shutter and aperture) and A – Aperture priority auto (camera controls shutter and you control aperture) exposure modes, the camera will not go below the Minimum shutter speed unless the Maximum sensitivity setting still won't give you a good exposure.

This is the answer to our question in the last section about what happens when there is not enough light and the camera has maxed out the Maximum sensitivity level. Even though you've selected a Minimum shutter speed, the camera *will go below the* Minimum shutter speed when the Maximum sensitivity ISO number has been reached and the light is still too low for a good exposure.

In other words, in P – Programmed auto or A – Aperture priority auto exposure modes, if you get into low light and try to take pictures, the camera will try to keep the ISO sensitivity as low as possible until the shutter speed drops to your selected Minimum shutter speed. Once it hits the selected Minimum shutter speed value—like the 1/30S shown in Figure 3-52, image 3—the ISO sensitivity will begin to rise up to your selected Maximum sensitivity value, like the ISO 400 shown in Figure 3-52, image 2.

Once the camera hits the Maximum sensitivity value, if there still isn't enough light for a good exposure, it won't keep raising the ISO sensitivity. Instead, the camera will now go below your selected Minimum shutter speed, dropping below the 1/30s shown in Figure 3-52, image 3. Be careful, because if the light gets that low, your camera can go all the way down to a shutter speed of 30 seconds to get a good exposure. You better be on a tripod and have a static subject with shutter speeds that low.

Look at the Minimum shutter speed value as the lowest "safe" speed, after which you'll put your camera on a tripod. Most people can handhold a camera down to about 1/60s if they are careful, and maybe 1/30s if they're extra careful and brace themselves. Below that, it's blur city for your images. It's even worse with telephoto lenses. Camera movement is

greatly magnified with a long lens, and a Minimum shutter speed of 1/250s to 1/500s or more may be required (max is 1/4000s).

ISO Sensitivity Auto Control from the Camera's Perspective

For fun, let's listen to the camera talk to itself while you take pictures in low light with ISO sensitivity auto control enabled. As we listen in on the D300(S) thinking—in the next paragraph—we need to know that the current Maximum sensitivity setting is ISO 400, and the Minimum shutter speed setting is 1/30s (as shown in Figure 3-52):

Nikon D300(S) thinking: "Okay, Auto ISO is on! The light is dropping and my current i/60s shutter speed at ISO 200 sensitivity won't let me make a good exposure. I'll slow the shutter speed to the minimum of 1/30s, as my owner specified in my Minimum shutter speed setting. More pictures are incoming, and the light is still dropping! I can't go any lower on the shutter speed for now, since my owner has instructed me
to keep the Minimum shutter speed at 1/30s unless I can't get a good picture. I'll have to start raising the ISO sensitivity. Here comes more pictures, and whew, it's getting dark! I've now raised the ISO sensitivity to my Maximum sensitivity level of ISO 400, which is as high as I am allowed to go. I have no choice now but to go below the 1/30s Minimum shutter speed my owner has specified. I hope I'm on a tripod!"

Note: The other exposure modes, S – Shutter priority and M – Manual, allow you to control the camera in a way that overrides certain parts of the ISO sensitivity auto control.

In M – Manual mode the camera completely relinquishes all control of the shutter and aperture. It can adjust only the ISO sensitivity by itself, so it can obey the Maximum sensitivity but the Minimum shutter speed is overridden and does not apply.

In S – Shutter priority mode the camera can control the aperture but the shutter speed is controlled only by the camera user. So, ISO sensitivity auto control can still control the Maximum sensitivity but has lost control over Minimum shutter speed.

Also, it may be a good idea to enable High ISO NR—as discussed a few pages back—when you enable ISO sensitivity auto control. This is especially true if you leave the camera set to the default Maximum sensitivity value of 3200. Otherwise, you may have excessive noise when the light drops.

When and why should I use ISO sensitivity auto control?

How much automation do you need to produce consistently excellent images? Let's explore how and when automatic, self-adjusting ISO might improve or degrade your images. What is this feature all about? When and why should I use it? Are there any compromises in image quality when using this mode?

Normally, you will set your camera to a particular ISO number, such as 200 or 400, and shoot your images. As the light gets darker, or in the deep shade, you might increase ISO sensitivity to continue taking handheld images. If you absolutely must get the shot, ISO sensitivity auto control will work nicely. Here are a few scenarios:

- ***Scenario # 1:*** Let's say you're a photojournalist and you're shooting flash pictures of the president as he disembarks from his airplane, walks into the terminal, and drives away in his limousine. Under these circumstances, you will have little time to check your ISO settings or shutter speeds and will be shooting in widely varying light conditions.

- ***Scenario # 2:*** You're a wedding photographer in a church that doesn't allow the use of flash. As you follow the bride and groom from the dark inner rooms of the church, out into the lobby, and finally up to the altar, your light conditions will vary constantly. You have no time to deal with the fluctuations in light by changing your ISO since things are moving too quickly.

- ***Scenario # 3:***
  You're at a party, and you want some great pictures. You want to use flash, but the pop-up Speedlight may not be powerful enough to reach across the room at low ISO settings. You really don't want to be bothered with camera configuration at this time but still want some well-exposed images. Light will vary as you move around the room, talking and laughing and snapping pictures.

These scenarios present excellent environments for ISO sensitivity auto control. The camera will use your normal settings, such as your normal ISO, shutter speed, and aperture, until the light will not allow those settings to provide an accurate exposure. Only then will the camera raise the ISO or lower the shutter speed to keep functioning within the shutter/aperture parameters you have set.

Look at ISO sensitivity auto control as a failsafe for times when you must get the shot but have little time to deal with camera settings, or when you don't want to vary the shutter/aperture settings but still want to be assured of a well-exposed image.

Unless you're a private detective shooting handheld telephoto images from your car or a photojournalist or sports photographer who must get the shot every time regardless of maximum quality, I personally would not recommend leaving ISO sensitivity auto control set to On. Use it only when you really need to get the shot under any circumstances!

Of course, if you are unsure of how to use the correct ISO for the light level due to lack of experience, don't be afraid to experiment with this mode. At the very worst, you might get noisier than normal images. However, it may not be a good idea to depend on this mode over the long term because noisy images are not very nice.

Are there any drawbacks to using ISO sensitivity auto control?

Maybe! It really depends on how widely the light conditions will vary when you are shooting. Most of the time, your

camera will maintain the normal range of ISO settings in ISO sensitivity auto control, so your images will be their normal low-noise, sharp masterpieces. However, at times the light may be so low that the ISO may exceed the normal range of 200–800 and will start getting into the noisier ranges above ISO 800.

Just be aware that ISO sensitivity auto control can and will push your camera's ISO sensitivity into a range that causes noisier images when light levels drop, if you've allowed it. Use it with this understanding and you'll do fine. ISO 3200 is the maximum, unless you have set the maximum to a lower number. Make sure you understand this or you might get some noisy images.

ISO sensitivity auto control is yet another feature of our powerful Nikon cameras. Maybe not everyone needs this failsafe feature, but for those who do it must be there. I will use it myself in circumstances where getting the shot is the most important thing and where light levels may get too low for normal ISO image-making.

Even if you think you might only use it from time to time, do learn how to use it for those times. Experiment a bit with ISO sensitivity auto control. It's fun and can be useful!

Live View Mode

(User's Manual: D300S page 48; D300 page 79)

Live view mode allows you to use the Monitor on the back of your camera to frame pictures instead of using the eyepiece and Viewfinder. It has two modes, Hand-held and Tripod, each of which uses a different type of autofocus (AF). Hand-held mode uses phase-detection AF, while Tripod mode uses contrast-detect AF. We'll discuss this more in a moment.

To use Live view mode, simply press the tiny Lv button on the back of the camera, just above the AF-area mode selector. The Monitor will turn on and show you what your camera's lens sees. It's like using the Viewfinder, but much larger.

Live view mode is an approach that some consider a throwback and others a lifesaver. Why do I say that?

Well, have you ever seen amateur photographers with a point-and-shoot camera—arms extended—as they use their camera LCD to frame pictures? How sharp can a picture be when one is holding the camera out in mid air snapping pictures? Using a heavier camera like the D300(S) this way would tire the arms more quickly and make sharpness even worse. That's not the best way to use Live view mode.

As for being a lifesaver, have you ever had to focus on a small subject while bent over at the waist? The back suffers quickly and it's hard to stay bent over for long. Live view mode solves that problem pretty well since you can just fire up Tripod Live view mode and take pictures using the big 3-inch monitor with contrast-detect AF.

In this section, we'll look at how to select Live view mode, with a brief description of how the Hand-held and Tripod modes work. I have devoted part of another chapter—**Chapter 8**—to Live view mode and will go into much more detail on all of this mode's capabilities. Here are the steps to select one of the Live view mode settings (see the screens in Figure 3-53):

Figure 3-53. Selecting a Live view mode

1. Select Live view mode from the Shooting Menu and scroll to the right.
2. Choose either Hand-held or Tripod from the Live view mode screen.
3. Press the OK button to finish the selection.

You can identify the two Live view modes by looking at the little icon in the upper-left corner of the Monitor (see Figure 3-54, red arrows). The Hand-held Live view mode uses an icon that looks like a hand holding a camera. The Tripod Live view mode icon is a camera with a tiny tripod on the bottom. Pretty easy to understand!

Figure 3-54. Identifying the Live view modes

Now, let's briefly discuss how each of these modes work.

- ***Hand-held*** – This mode uses the same phase-detection autofocus system as when you are looking through the Viewfinder. When you take a picture in this mode, it works pretty fast since it focuses using the normal reflex mirror and autofocus system. The drawback for having a fast mode is that the Monitor must black out briefly, just as when you're using the Viewfinder.

  Taking a picture in Hand-held mode happens in two steps. When you press the Shutter-release button, you'll first hear a slap as the mirror raises, and then the screen will black out as autofocus works. Then you'll hear the mirror move up and down once more as the image is taken, and the view will reappear. It's a bit strange to use the first couple of times, and it makes a lot of noise, but this mode works pretty well.

  You can use either the Shutter-release button or the AF-ON button to autofocus the camera when using Hand-held mode. Oh, and don't be afraid to use

Hand-held mode on a tripod. It works just fine that way too

- ***Tripod*** – Tripod mode is much slower, but it gives you extreme focus accuracy. Instead of using the normal phase-detection autofocus, the camera switches to contrast-detect AF. This is the best mode for doing macro (close-up) shooting and allows you to zoom in to the pixel-peeping level to see exactly what's in focus. You'll use the AF-ON button, just to the left of the rear Main command dial, to focus the camera.

  You can use the Playback zoom in button (looks like a magnifying glass with a plus sign) on the camera's back to zoom in until you can see fine detail. Then you'll focus with the AF-ON button and press the Shutter-release button to take the picture. The Monitor will black out while the picture is being taken.

  You can use Tripod mode off-tripod too. In fact, it's good practice to do so since the D300S (only) has D-Movie mode, which uses contrast-detect AF just like Tripod Live view mode. It works the same, so you'll need to know how to use it.

We'll spend a lot more time on the Live view modes in the chapter titled **Chapter 8**. Hopefully, this introduction will allow you to play with the modes, and even understand them a bit.

My Recommendation: Live view mode is one of those camera functions that you'll either love or hate. If you came over from the point-and-shoot world, and the D300(S) is your first DSLR, it may seem like a godsend to you. If you are an old-time photographer, you may just roll your eyes and say,

“Not for me!” However, in using Live view mode more often myself, I’m learning to like it. I don’t use it off-tripod very often, but on-tripod it makes certain styles of shooting much easier. I like the extreme focusing accuracy of Tripod mode when shooting macros and general close-ups—especially when it saves bending over a lot. Give it a try; you may like it too!

Multiple Exposure

(User's Manual: D300S page 184; D300 page 186)

Multiple exposure is the process whereby you take more than one exposure on a single frame, or picture. Most of us will only do double exposures, which is two exposures on one frame.

Multiple exposure requires you to figure the exposure values carefully for each exposure segment so that in the final picture, all the combined exposures equal one normal exposure. In other words, if you are going to do a non-masked double exposure, your background will need two exposures at half the normal exposure value to equal one normal exposure.

The D300(S) allows us to figure our own exposure settings and do them manually, and it gives us Auto gain to help us with exposure calculations.

There are really only three steps to setting up a Multiple exposure session. However, there are six Shooting Menu screens we'll use to do these three steps. The steps are as follows:

- Select the Number of shots you want to take from the Shooting Menu screens.
- Set Auto gain to either On or Off according to how you want to control exposure.
- Take the picture.

As mentioned, there are six Shooting Menu screens involved in setting up the Multiple exposure system (see Figure 3-55).

Let's consider each of the screens and steps, as shown in Figure 3-55, and discover how to set up the Multiple exposure system.

1. Select Multiple exposure from the Shooting Menu and scroll to the right (see Figure 3-55, image 1).

Figure 3-55. Setting up a multiple exposure

2. Select Number of shots and scroll right (see Figure 3-55, image 2).
3. Enter the number of shots you wish to take, any number between 2 and 10, and press the OK button (see Figure 3-55, image 3).
4. Select Auto gain and scroll right (see Figure 3-55, image 4).
5. Select On and press the OK button (see Figure 3-55, image 5).
6. Select Done and press the OK button (see Figure 3-55, image 6).

7. Shoot your images from a tripod.

Once you've selected a Number of shots, the camera remembers the value and comes back to it for the next session. To repeat another Multiple exposure series with the same settings, you'll have to use screen 2 again. Select Done and press the OK button. That prepares the camera to do the Multiple exposure series in the same way as last time. The camera remembers the previous Number of shots and other settings until you reset them using screen 2 of Figure 3-55.

Understanding Auto Gain

Auto gain defaults to On, so you need to understand it well. Let's discuss it in detail.

Auto gain only applies if you want to make a number of exposure segments with the exact same exposure value for each. If you want to make two exposures, the camera will meter for a normal exposure and then divide the exposure in half for the two shots. For three shots, it will divide the exposure by one third, four shots by one quarter, eight shots by one eighth...and so forth.

In other words, it will divide the normal exposure for a single shot by the number you entered on the Number of shots screen so that when you are done, you have the equivalent of a single good exposure. Does this make sense?

Another way of looking at it is this: If I want a two-shot Multiple exposure, I normally want the background to get half of a normal exposure in each shot so that it will appear normal in the final image. Auto gain does that automatically. If I need four shots, I only want the background to get a

quarter of a normal exposure for each shot so that I'll have a normally exposed background when the four shots are taken.

The reason I mentioned this in such a repetitive fashion is that it took me a little while to wrap my brain around the confusing presentation of this fact in the user's manual. Whoever heard of "gain" meaning dividing something into parts? What I think the manual writer was trying to say is that each shot "gains" a portion of the normal exposure so that in the end, the exposure is complete and correct. I hope this makes sense to you.

Auto gain is like an automatic normal-exposure "divider-upper" for multiple exposures. It divides the exposure into appropriate sections—so you won't have to fool with it.

When should one use Auto gain? Only when you have no need for controlling exposure differently for each frame but instead can use an exact division of similar exposures.

Auto gain works fine if you're not using masks. When you use a mask, you want a full normal exposure for each of the uncovered (non-masked) sections of the image, so Auto gain will not work for this. In this case, you should use manual exposure, with Auto gain turned Off.

Figure 3-56. Two sample multiple exposures

My Recommendation: Multiple exposure images can be a lot of fun to create (see Figure 3-56). I often shoot Multiple exposure images with two people in the frame. One person leaves after the first half of the exposure is taken, while the other stays carefully still. When finished, you will have a normal picture of one person and the background, but the person that left halfway through the Multiple exposure will be ghosted. That means you'll be able to see the background right through her. It's even more fun if you have the person that leaves touch the other person during the first half of the Multiple exposure. Maybe have her put a hand on the other person's shoulder or wrap her arms around him.

If the person that stays for the entire exposure is very careful not to move at all, they will remain sharp, and the image will certainly raise eyebrows later.

You can also do this with just one person, as the second picture in Figure 3-56 shows. Just make sure they leave halfway through the Multiple exposure.

Finally, be sure you are using a tripod when creating a Multiple exposure image, unless you are masking part of the frame. Otherwise, the background will be completely blurred from camera movement between shots.

Movie Settings (D300S Only)

(User's Manual: D300S page 62)

Movie settings are only available in the D300S.

This set of functions allows you to adjust three specific things about how the D-Movie mode works:

Figure 3-57. Initial D-Movie mode screens

- ***Quality*** – Select from one High Definition (HD) mode and two Standard Definition (SD) modes.
- ***Microphone*** – Change the sensitivity of the internal or external microphone, or turn it off.
- ***Destination*** – Select which memory card (SD or CF) will receive all D-Movies you create.

Let's look at each of the settings listed and their configuration screens. The Quality setting allows you to control the resolution of a D-Movie created by your camera (see Figure 3-58).

You have three choices available: 1280×720 (or 720p HD), along with two SD modes, 640×424 and 320×216. The numbers following the resolution numbers—16:9 and 3:2—are format sizes. 16:9 is the standard HD format and will display on an SDTV in the wide-screen format, with a black band on the top and bottom of the screen. 3:2 more closely matches the SDTV
format (regular TV) we've been using for years, but which is rapidly becoming obsolete. 3:2 will display full-screen on a normal TV. The HD format (1280×720) has a limit of 5 minutes recording time. The other two SD formats can record 20-minute video clips.

Figure 3-58. D-Movie mode – Quality

Here are the steps to choose a Quality setting:

1. Continuing from Figure 3-57 (Shooting Menu > Movie settings), select Quality from the Movie settings menu and scroll right (see Figure 3-58).
2. Select one of the three formats for video recording.
3. Press the OK button to choose the format.

Now, let's look into the Microphone settings (see Figure 3-59). The D300S has a built-in Microphone, which you can see by looking for the three small holes just below the D300S logo on the front of the camera. Be careful not to block them when recording. You can also buy a plug-in stereo mic that will use the stereo plug under the rubber flap on the side of the camera. We'll look into this a little deeper when we get to the chapter called **Chapter 8**.

Figure 3-59. D-Movie mode – Microphone

You can select from four sound-level settings—Auto, High, Medium, and Low—or set the Microphone setting to Off. Here are the steps to select a sound-level setting:

1. Continuing from Figure 3-57 (Shooting Menu > Movie settings), select Microphone from the Movie settings menu and scroll right (see Figure 3-59).
2. Select one of the five choices for sound-level sensitivity.
3. Press the OK button to lock in the mic sound level.

Next, we'll examine the final Movie setting called Destination. Destination lets you choose which memory card will receive and store your camera's video recordings. Just

below the card slot selections you will see something like 00h 38m 49s. This is the total recording time the particular card will hold. The HD mode, which I have selected, creates surprisingly large files. As shown in Figure 3-60, image 2, I can only hold about 35-45 minutes on an 8 GB Compact Flash card.

Figure 3-60. D-Movie mode – Destination

If you're serious about shooting video with your camera, you better buy some high-capacity cards—you'll need them! Here are the steps to select a Destination for D-Movies:

1. Continuing from Figure 3-57 (Shooting Menu > Movie settings), select Destination from the Movie settings menu and scroll right (see Figure 3-60).
2. Select one of the two cards slots.
3. Press the OK button.

My Recommendation: When you shoot a D-Movie, have a specific display type in mind. If you have an older SDTV, the 640×424 format fits the screen well. An HD TV requires the 1280×720 format so that you can display 720p video. Notice

that the Apple iPad supports 720p HD video too! Even **YouTube.com** is changing over to HD.

The smallest format (320×216) is good for basic videos that you'll only display on an iPhone, iPod, PDA, or cell phone.

Interval Timer Shooting

(User's Manual: D300S page 189; D300 page 191)

Interval timer shooting allows you to set your camera up to shoot a series of images over time. Make sure you have a full battery or are connected to a full-time power source for images taken over long periods of time.

The first step in using Interval timer shooting is to make sure that your Time zone and date (D300S) or World time (D300) are set correctly in the Setup Menu of your camera (see the heading **Time Zone and Date or World Time** in the chapter titled **Chapter 5**). If you don't have the camera's time and date information set, the Interval timer shooting menu selection will be grayed out, and you won't be able to use it. (see Figure 3-61).

Figure 3-61. Interval timer shooting configuration

The screens in Figure 3-61 look a little daunting, but it might help you to realize that the bottom half of screens 2-6 is informational in nature. It shows the settings you create with the top half of each screen.

There are four steps involved in configuring Interval timer shooting:

- Choose a Start Time.
- Choose an Interval.
- Choose the number of intervals (Select intvls).
- Choose the number of shots per interval (no. of shots).

So, if I wanted to take a series of images starting Now (Start time), and shoot every 10 seconds (Interval), over a period of 30 seconds, or 3 intervals (number of intervals), making 2 images per interval (number of shots), I would set the following (get your camera and try these steps yourself so that it'll make sense to you):

1. Under Choose start time (see Figure 3-61, image 2), you could select Now, and the timer will start 3 seconds after you've complete steps 3–5 (skipping step 2). If you select Now, the camera will skip step 2 since it selects a start time. If you'd rather start at a future time—instead of now—simply select Start time from screen 2 and scroll right, then move on to step 2.
2. You will now see a Start time menu (see Figure 3-61, image 3) with the time in 24-hour (military) format:
    - 00:00

Enter the time at which you want the intervals to begin. If I wanted to start at 3:30 p.m., I would insert the following:

- 15:30

Once you've entered the time, scroll to the right.

3. You will now see the Interval screen with hours : minutes' seconds″; in the following format (see Figure 3-61, image 4):

   - 00 : 00′ 00″

   The first two zeros represent the hour, the second set represents minutes, and the third set seconds. Since we want to start out with an Interval of 10 seconds, let's set the screen to look like this:

   - 00 : 00′ 10″

   Scroll to the right to get to the next screen.

4. Now we'll select the number of intervals (see Figure 3-61, image 5). This screen will say Select intvls X no. of shots in the format below. Number of intervals × number of shots = total shots.

   - 000 × 0 = 0000

   Set your camera so that it looks like this instead (see Figure 3-61, image 5):

   - 003 × 2 = 0006

   This means that there will be 003 intervals of 10 seconds each (set in step 3 above) and that the camera will take 2 pictures in each interval, for a total of 0006 pictures. In

other words, 2 pictures will be taken every 10 seconds over a period of 30 seconds for a total of 6 images. Now scroll to the right to get to the next screen.

5. Select On from the final screen (Figure 3-61, image 6) and press the OK button. A *Timer Active* message will appear on your camera's Monitor (see Figure 3-62). If you look at the top Control panel you will see the word INTVL on the D300S, or INTERVAL on the D300, flashing. This will keep flashing as long as the Interval timer is in operation.

Figure 3-62. Timer is active

If you're shooting a timed interval during daylight hours, be sure to use the little black eyepiece cap (DK-5) supplied with your camera. Otherwise, changes in the light from behind the camera could cause the exposure to be inaccurate.

To pause or stop an interval and cease timer operations, simply select Interval timer shooting from the Shooting Menu

and scroll to the right (see Figure 3-63). This won't work if your intervals are very close together.

Notice how Figure 3-63, image 1, shows that Interval timer shooting is, proving that an interval is in progress.

After scrolling to the right, you can select Pause or Off from the screen with the bright green *In progress* bar (see Figure 3-63, image 2). At the bottom of the screen, you will also see the starting time (Now will show a series of dashes, as shown), current interval delay, and number of intervals and shots remaining, in case you don't want to pause or stop it but just want to see how things are going.

Figure 3-63. Checking on operations between intervals

The number of intervals remaining will be displayed on the Control panel, in the same spot the shutter speed is normally displayed. The place that normally displays the aperture will instead display the number of shots remaining in the current interval setup.

Note: Be sure to adjust any bracketing for the exposure or flash (AE & flash or Flash only), or Active D-Lighting (ADL bracketing) before you start Interval timer shooting.

Bracketing overrides Number of shots, so you may not get what you expected if any kind of bracketing is active.

My Recommendation: Please learn to use this function! It is complicated, but if you read this section carefully and practice using Interval timer shooting as you read, you'll learn it quickly. This type of photography allows you to shoot things like flowers gradually opening or the sun moving across the sky. Have some fun with it!

My Conclusions

Congratulations! You've fully configured one of the camera's four Shooting menu banks. Now, set up another bank or three! Configure the others and your chameleon camera is at your command!

Using the camera's four Shooting menu banks allows you a great deal of flexibility in how your camera operates. You can switch between four different camera types, in a sense.

The upcoming information on the Custom setting banks will round out the major configuration of your camera for daily shooting. There are no direct connections between the four Shooting menu banks and the four Custom setting banks. You could create your own connection by naming them similarly. However, the combinations of how you configure this camera, and combine the banks, are virtually endless. Chameleon central!

Chapter 4. Custom Setting Menu

Bikes Catch Air – Courtesy of Ken Rutt (*raxafarian*)

In Chapter 3 we carefully considered the configurability of the Nikon D300(S) and its Shooting menu banks. Now we will continue with this process by examining the Custom setting banks in complete detail.

Let me start with a clear statement that there are no direct connections between the Shooting menu banks and the Custom setting banks. I mentioned this in the last chapter but wanted to emphasize it here too. You can create an artificial connection by labeling the banks in a similar manner, if you'd like. However, it's only a label.

In my mind there is no clear difference between the settings in either type of banks. In fact, in a recent camera (D3000), Nikon merged the Custom Settings with the Shooting Menu (and others). I think there is an awful lot of menu complexity in these pro-level cameras that could be rethought, and probably will be in upcoming years.

Figure 4-1 shows you the location of the Custom Setting Menu. It's the third menu down on the left-hand toolbar, and its yellow icon looks like small pencil.

I count no less than 50 Custom Settings in the D300S and 48 in the D300. We've got a lot of ground to cover, and we will, in great detail.

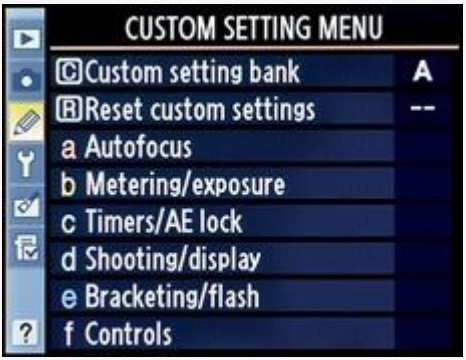


Figure 4-1. Custom Setting Menu

When finished with this chapter, you'll have a much deeper knowledge of this camera's inner workings and capabilities.

Without further ado, let's dive right into the settings and see what they do. There are a couple of initial items on the menu before we get into the primary Custom Settings.

Renaming a Custom Setting Bank

First, we'll consider the process of renaming Custom setting bank A so that we'll know what style of shooting this bank is configured to support.

In the last chapter, we discussed how to rename a Shooting menu bank to describe its functionality.

Changing the name of a Custom setting bank works exactly the same way.

If you're familiar with the process, you can just name your bank and skip this first section.

Figure 4-2. Renaming Custom setting bank A

Here are the steps to rename a Custom setting bank (see the screens in Figure 4-2):

1. Select Custom setting bank from the Custom Setting Menu and scroll to the right.

2. Notice that in the first screen of Figure 4-2, Custom setting bank has an A after it. This means that your camera is using bank A. If any letter other than A is showing, you are in a different Custom setting bank. Set the bank to A, and we'll add a new name so that you'll be able to see at a glance what this particular bank is set up to accomplish. Scroll to the right (see Figure 4-2, image 2).

3. Assuming that you have not yet renamed any of your Custom setting banks, you'll see the four blank default banks called A, B, C, and D, and a selection called ABC Rename (see Figure 4-2, image 2). Scroll down to ABC Rename and scroll to the right.

4. Your screen will now look like the fourth screen in Figure 4-2. This is the bank rename screen. You'll see a series of characters on top, with a line of dashes below. The dashes are where we will put our text to rename the bank. In the upper-left corner of the characters area is a blank spot that represents a blank character for insertion in the line of text. Use the Multi Selector to scroll through the numbers and letters to find the characters you want to use. If you scroll down past the uppercase letters, you'll find some lowercase letters too. Press the Multi selector center button on the D300S or the center of the Multi Selector on the D300 to select a character. Keep selecting new characters until you have the entire bank name in place. If you make a mistake, hold down the Thumbnail/playback zoom out button while using the Multi Selector to move to the position of the error. Push the garbage can Delete button on the back of the camera to remove the bad character.

5. Press the OK button to save the new name.

Excellent! You've labeled bank A with a more meaningful name so that you can quickly recognize this customizable bank of functions. I named bank A General Purpose on my camera to help match the Shooting menu bank by the same name. Once again, this is completely optional.

Note: The D300S provides a selection on the Information display edit screen for choosing or renaming a Custom setting bank. Press the Info button twice. Choose Custom A-D, then select or rename the bank.

Figure 4-3. D300S Info. display edit screen – Custom setting bank

Reset Custom Settings

If you ever get a hankering to start fresh with a particular bank, you can return to the factory default settings with Reset custom settings.

Make sure that you are resetting the correct bank before you use this function. The bank name that appears just above Reset custom settings—next to Custom setting bank—is the one you are about to reset.

Figure 4-4. Reset Custom setting bank A

Here are the steps to Reset the currently active Custom setting bank (see the screens in Figure 4-4):

1. Select Reset custom settings from the Custom Setting Menu and scroll to the right.
2. Choose Yes and press the OK button to reset the bank to factory default settings.

Naming Variances between the D300S and D300

Before we start looking at the individual Custom Settings, I want to give you an explanation about some name variances between the two cameras covered in this book.

Anytime a new camera is released, there are some software changes. Often, a firmware update will also cause minor changes. The D300S is no exception. Especially in this chapter, there have been textual changes in some of the setting names.

Also—and even more difficult to deal with—there are a couple of extra Custom Settings in the D300S, so the Custom Setting numbering is different in some areas. For instance, Custom setting d10 does something completely different in the D300S and the D300.

In order to keep from causing confusion for book readers, I have emphasized the name of each Custom Setting instead of its number. I also show the numbers for each setting, but I combined each setting under its name instead of its number so as not to repeat the same text over and over when the numbers varied.

You'll find this method at the start of each section:

- Setting name – **Exposure delay mode**
- Setting numbers – **Custom setting d10 (D300S) and d9 (D300)**

Since it would greatly lengthen this book to add graphics (screens) for both the D300S and D300, I included graphics

based on the D300S unless something could not be explained for the D300 without its own graphic. The main difference you'll find is that some of the graphics will not match the D300's Custom Setting number since they are based on the setting number of the D300S. However, this should not be confusing since the Custom Setting name is much more prominent than the Custom Setting number. When in doubt, please refer to the heading of each section, where the correct Custom Setting number is listed for both the D300S and D300.

I divided this chapter up into six distinct sections. There is a section for each major division of the Custom Settinge.e., Autofocus, Metering/exposure, Shooting display, etc. This will make it easy to find a particular setting in the large number of available choices.

Now, let's look at each setting, starting with those found under Custom setting a, or Autofocus.

Section One – (a) Autofocus: Custom Settings a1 to a10

You'll find 10 distinct settings within the Autofocus menu in both the D300S and D300. There are no numbering variances between the two cameras in this section:

▪ AF-C priority selection	(a1 in both D300/D300S)
▪ AF-S priority selection	(a2 in both D300/D300S)
▪ Dynamic AF area	(a3 in both D300/D300S)
▪ Focus tracking with lock-on	(a4 in both D300/D300S)
▪ AF activation	(a5 in both D300/D300S)
▪ AF point illumination	(a6 in both D300/D300S)
▪ Focus point wrap-around	(a7 in both D300/D300S)
▪ AF point selection	(a8 in both D300/D300S)
▪ Built-in AF assist illuminator	(a9 in both D300/D300S)
▪ AF-ON for MB-D10	(a10 in both D300/D300S)

This first section is about how to configure the autofocus system in various ways. The whole process is rather complex, and important for good photography. I thought autofocus and related functions important enough that I've included an entire chapter in this book titled **Chapter 11**. It covers autofocus and related functions in much deeper detail. Please be sure to read that chapter well.

AF-C Priority Selection

Custom setting a1 (D300S and D300)

(User's Manual – D300S page 263; D300 page 267)

AF-C priority selection is designed to let you choose how your autofocus works when using Continuous-servo autofocus mode (AF-C).

If you configure this setting incorrectly for your style of shooting, it's entirely possible that a number of your pictures will be out of focus. Why?

Well, if you'll notice in Figure 4-5, image 3, there are three specific selections:

- ***Release*** – If the image must be taken no matter what, then you will need to set AF-C priority selection to Release. This allows the shutter to fire every time you press the Shutter-release button, even if the image is not in focus. Releasing the shutter has "priority" over autofocus.

  If you are well aware of the consequences of shooting without a focus guarantee, then use this setting to make

your camera take a picture every time you press the Shutter-release button. Your camera will shoot at its maximum frames per second (FPS) rate since it is not hampered by the time it takes to validate that each picture is in correct focus.

You'll need to decide whether taking the image is more important than it being in focus. We'll discuss why the Release and Release + focus functions exist in an upcoming section titled **Using Custom settings a1 and a2**.

- ***Release + focus –*** This function slows the frame rate for improved focus when the light is low or the subject has little contrast with its surroundings, but it still allows the shutter to fire even if it cannot find a good focus point. Release still has priority over Focus, but the camera tries to focus before releasing the shutter.

- ***Focus –*** This setting is designed to prevent your camera from taking a picture when the Viewfinder's green in-focus indicator is off. In other words, if the picture is not in focus, the shutter will not release. It does not mean that the camera will always focus on the correct subject. It simply means that your camera must focus on something before it will allow the shutter to release. Nikon cameras do a very good job with autofocus, so you can usually depend on the AF module to perform well. The Focus setting will drastically increase the chances that your image is in correct focus.

Here are the screens and steps to select a shutter-release priority when using AF-C mode (see Figure 4-5):

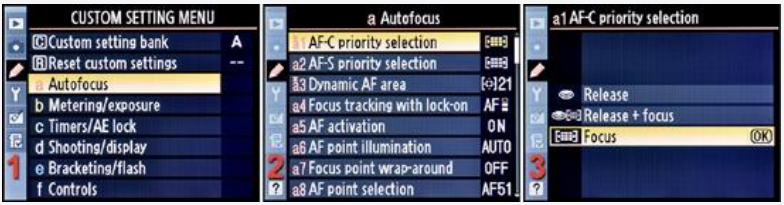


Figure 4-5. Choosing a shutter release priority for AF-C mode

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-5, image 1).
2. Highlight AF-C priority selection and scroll to the right (see Figure 4-5, image 2).
3. Choose one of the three settings from the menu, with full understanding of what may happen if you don't choose Focus.
4. Press the OK button to select your shutter-release priority.

My Recommendation: Since I'm not a sports or action shooter, I choose Focus. Even if I were an action shooter, I would choose Focus. Read the section called Using Custom settings a1 and a2 before you make your final choice. The safe choice is Focus.

AF-S Priority Selection

Custom setting a2 (D300S and D300)

(User's Manual – D300S page 264; D300 page 268)

AF-S priority selection is very similar to AF-C priority selection. It, too, allows you to choose whether the camera will take a picture without something in focus. With this function, you set a shutter-release priority for Single-servo autofocus mode (AF-S). Set it wrong for your style of shooting and many of your pictures may be out of focus. Personally, I choose Focus priority when using AF-S. There are two modes to choose from:

- ***Release*** – A photo can be taken at any time, even if not in focus. This can lead to images that are out of focus, unless you manually focus each time you take a picture. The camera's priority is releasing the shutter when you press the Shutter-release button, and it will do so even if nothing is in focus.
- ***Focus*** (default) – The image must be in focus or the shutter will not release. This means that the shutter won't release unless the Viewfinder's green in-focus light is on. This is the closest thing to a guarantee that your image will be in focus when you press the Shutter-release button. However, if you are focused on the wrong part of your subject, the camera will still fire.

Here are the screens and steps to select a shutter-release priority when using AF-S mode (see Figure 4-6):

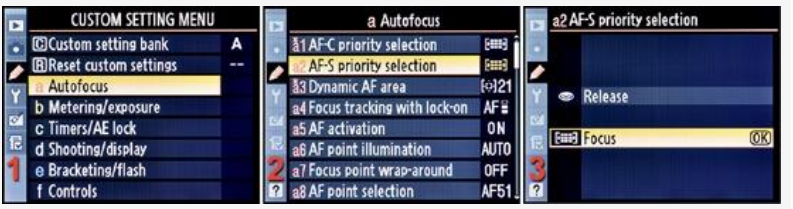


Figure 4-6. Choosing a shutter release priority for AF-S mode

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-6, image 1).
2. Highlight AF-S priority selection and scroll to the right (see Figure 4-6, image 2).
3. Choose one of the two settings from the menu, with full understanding of what may occur if you don't choose Focus.
4. Press the OK button to select your shutter release priority.

My Recommendation: Once again, I choose Focus. I love pictures that are in focus, don't you? When I don't want images in focus, I'll just flip the switch to manual on the camera or lens and focus where I want. Please read the next section very well!

Using Custom settings a1 and a2

Release priority vs. Focus priority – Two of the more important functions in this Custom Settings chapter are a1 and a2. I added this special section so you'll understand why you must pay very close attention to these two settings.

Focus priority simply means that your camera will refuse to take a picture until it can reasonably focus on something. Release priority means that the camera will take a picture when you decide to take it, whether anything is in focus or not!

Now, you might ask yourself, "Why is there such a setting as Release priority?" Well, many professional photographers shoot high-speed events at high frame rates—taking hundreds of images—and use depth of field (or experience and luck) to compensate for less than accurate focus. They are in complete control of their camera's systems since they have a huge amount of practice in getting the focus right where they want it to be.

There are valid reasons for these photographers not to use Focus priority. However, most of those same photographers do not let the Shutter-release button start autofocus either, since the focus could change every time the Shutter-release button is pressed. They set AF activation – Custom setting a5 so that the autofocus doesn't even activate until the AF-ON button is pressed. They then use the AF-ON button exclusively for autofocus and the Shutter-release button to take the picture. They separate the two functions instead of using the Shutter-release button for both.

You need to ask yourself, "What type of a photographer am I?" If you are a pro shooting hundreds of pictures of fast racecars, Focus priority may not be for you. However, for the average photographer taking pictures of his kids running around the yard, deer jumping a fence, beautiful landscapes, flying birds, or a bride tossing a bouquet, Focus priority is usually the best choice. For most of us, it's better to have the camera refuse to take the picture unless it's able to focus on our subjects.

When you're shooting at a high frame rate, Focus priority may cause your camera to skip a series of out-of-focus images. It will slow your camera's frame rate so that it will not reach the maximum 6-8 frames per second, in some cases.

But, I have to ask, what is the point of several out-of-focus images mixed with the in-focus pictures? Why waste the card space and then have to weed through the slightly out-of-focus images?

Pay special attention to these two settings. You will need to decide—based on your style of shooting—whether you want your camera to refuse to take an out-of-focus image. If you set a1 and a2 to Focus priority and you try to take an out-of-focus image, the Shutter-release button will simply not release the shutter. The green in-focus indicator in the Viewfinder will have to be on before the shutter will release.

My Recommendation: Personally, I set both a1 and a2 to Focus priority. I'm not a high-speed shooter, so I don't need my camera to take a picture "no matter what" if that includes a series of out-of-focus images. What good are out-of-focus images? We'll discuss this even more in the chapter titled **Chapter 11**.

Dynamic AF Area

Custom setting a3 (D300S and D300)

(User's Manual – D300S page 264; D300 page 269)

Dynamic AF area lets you choose the number of AF points used when you put your camera in Dynamic-area AF mode. First, let's review Dynamic-area AF; then we'll discuss how a larger or smaller number of AF points (9, 21, or 51) might help us with autofocus (see Figure 4-7). Dynamic-area AF mode works by allowing you to control a single AF point, using it to initiate good focus. You can move your selected

AF point among the 51 points in the Viewfinder by using the Multi Selector.

Once good focus has been achieved with your selected AF point, the camera can track the subject, even if your selected AF point loses focus on the subject. It does this by allowing you to select patterns of extra AF points surrounding your single selected AF point. The patterns are 9 points, 21 points, and 51 points. There's even a 51 points (3D tracking) mode available, which works great for subjects moving erratically, including toward or away from you. Figure 4-7 shows the patterns, in red, that would be active if you were using the center AF point in the Viewfinder.

Of course, if you select 51 points, all the AF points are active. If you select 9 points or 21 points, you can move the entire smaller pattern around the Viewfinder using the Multi Selector. Unfortunately, you can only see the primary selected AF point moving in the Viewfinder, not the pattern. You'll have to imagine one of the red patterns moving with your selected AF point, which will be in the center of the pattern.

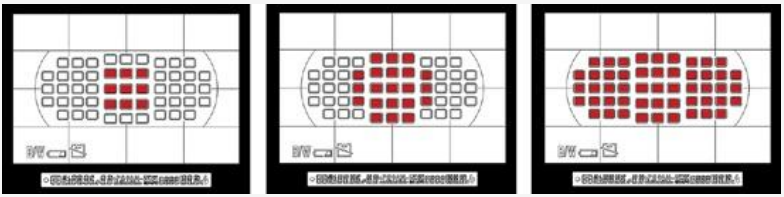


Figure 4-7. Viewfinder with AF point comparison

We'll discuss this even more deeply in the chapter titled **Chapter 11**. This chapter only addresses how to configure the setting.

Let's examine the 9, 21, 51, and 51 point (3D-tracking) patterns:

- ***9 points –*** Use this setting when the movement of your subject is predictable. This setting uses an array of 8 AF points surrounding your selected and viewable AF point. Good subjects for this mode may be a car race or air show.
- ***21 points –*** If your subject is moving unpredictably, this may be your best choice. This uses 20 AF points surrounding your viewable point. Good subjects for this setting might be players in a football or basketball game.
- ***51 points –*** This is for worst-case scenario subjects that are small or move rapidly and unpredictably—to the point that it is even hard to keep them in the Viewfinder. All 50 sensors surrounding your selected sensor are active. A good subject might be a bird in flight. (See the upcoming sidebar called **More AF Points Can Mean Slower Autofocus Response Time**.)
- ***51 points (3D-tracking)*** **–** This mode is very similar to regular 51 points, except that it adds color tracking to the mix. It remembers the color of your subject and tries to maintain the focus with this extra help.

Here are the screens and steps to select one of the four pattern types (Figure 4-8):

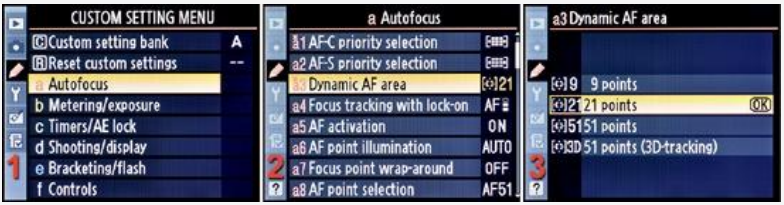


Figure 4-8. Dynamic AF area selection

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-8, image 1).
2. Highlight Dynamic AF area and scroll to the right (see Figure 4-8, image 2).
3. Choose one of the four choices from the menu. I have 21 points selected in Figure 4-8, image 3.
4. Press the OK button to lock in the mode.

Please review the next section (Custom setting a4) called Focus Tracking with Lock-On. It is critical for working with sensor patterns and Dynamic-area AF. If you don't set a4 to On, you may not be able to continue tracking a moving subject when an object briefly comes between you and your subject.

My Recommendation: I've experimented with outdoor and indoor subjects using both a D300S and D300. Both cameras have an amazingly fast and accurate autofocus system. The D300S has an edge due to the extra processing power it has from its ability to shoot video. It's important that you experiment with your camera's autofocus performance when using 51 point Dynamic AF area. I use 21 point Dynamic AF

area most of the time because it's faster when my camera is in Dynamic-area AF mode (see text box).

> More AF Points Can Mean Slower Autofocus Response Time
>
> The more active AF points you select, the slower the autofocus system's response to initial autofocus will be. Fewer AF points mean faster AF. However, use the number of points you need to capture pictures of your selected subject. The D300S has a more powerful microprocessor base than the D300, since it also has to process D-Movies. It performs better in low-light environments when you have 51 points selected. If the light is low and you are shooting events like a wedding or graduation, you'll need to make sure that the 51-point settings are fast enough for your use. Experiment with this before you use 51 points to shoot an indoor event. Although the D300S is faster, I still use 21 points most often. Neither camera is a slowpoke, but this is one of the trade-offs we made by not buying a D3, D3s, or D3x. Experiment so that you know your camera well. Just trying to save you some missed shots at critical times!

Focus Tracking with Lock-On

Custom setting a4 (D300S and D300)

(User's Manual – D300S page 266; D300 page 270)

Focus tracking with lock-on allows you to select the length of time that your camera will ignore an intruding object that blocks your subject.

In other words, let's say you are focused on a bird flying past you. As you pan the camera with the bird's movement, the autofocus system tracks it and keeps it in good focus. As the bird flies by, a road sign briefly interrupts the focus tracking as the bird moves behind it and then re-emerges. How would you feel if the bright, high-contrast road sign grabbed the camera's attention and you lost tracking on the bird? That would be quite aggravating, wouldn't it?

The D300(S) provides Focus tracking with lock-on to prevent this from happening. The "lock-on" portion of this function helps your camera keep its focus on your subject, even if something briefly comes between the camera and subject. The camera locks on to your subject doggedly if this function is enabled.

Without Focus tracking with lock-on, any bright object that gets between you and your subject may draw the camera's attention and cause you to lose focus on the subject.

The camera provides a variable time-out period for the lock-on functionality. Lock-on time-out allows an object that stays between the camera and your subject for a predetermined length of time to attract the camera's attention. You can adjust the length of this time-out with a time period from Short to Long.

Here are the screens and steps to configure Focus tracking with lock-on (see Figure 4-9):

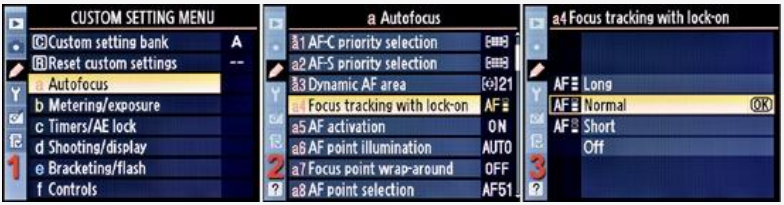


Figure 4-9. Focus tracking with lock-on

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-9, image 1).
2. Highlight Focus tracking with lock-on and scroll to the right (see Figure 4-9, image 2).
3. Choose one of the four choices from the menu. Figure 4-9, image 3, shows Normal, or about 1.5 seconds time-out.
4. Press the OK button to select the time-out period.

Let's discuss the time-out periods in a little more detail. They are as follows:

- Long (about 2 seconds)
- Normal (about 1.5 seconds)
- Short (about 1 second)

This allows you to fine-tune how you want Focus tracking with lock-on to work. The camera can ignore an intruding subject for a second or more.

With Single-point AF, the camera will start the lock-on time-out as soon as the single AF point is unable to detect the subject.

With Dynamic-area AF or Auto-area AF and Focus tracking with lock-on enabled, I was amused at how adamant the camera was about staying with the current subject. I'd focus on a map on the wall and then cover most of the focusing points with the user's manual. As long as I allowed at least one or two AF points to remain uncovered so it could see the map, the focus did not switch to the manual. I could just hear the D300S muttering, "Hah, you can't fool me. I can still see a little edge of that map there, so I'm not changing focus!"

Only when I stuck the D300S manual completely in front of the lens, covering all the AF points, did the camera decide to start timing the Focus tracking with lock-on time-out. After a second or two, the camera would give up on the map and focus on the manual instead.

Try this yourself! It's quite fun and will teach you something about the power of your camera's AF system.

Does Lock-On Cause Autofocus to Slow Down?

Focus tracking with lock-on is an autofocus algorithm that allows your camera to maintain focus on a subject and ignore anything that comes between the camera and the subject for a period of time. It will "lock-on" that subject and track where it is on the array of AF points in the Viewfinder. Focus tracking with lock-on is controlled by configuring Custom setting a4 to a duration period or to Off.

Some misunderstanding surrounds this technology. Since it is designed to cause the autofocus to hesitate for a variable time period before seeking a new subject, it may make the camera seem sluggish to some users.

But, this "sluggishness" is really a feature designed to keep you from losing your subject's tracked focus. Once the camera locks on to a subject's area of focus, it tries its best to stay with that subject even if it briefly loses the subject. This keeps the lens from racking in and out and searching for a new subject as soon as the previous subject is no longer under an AF point.

It also causes the camera to ignore other higher-contrast or closer subjects while it follows your original subject. You will have to judge the usefulness of this technology for yourself. I suggest that you go to some event, or down to the lake, and track moving objects with and without lock-on enabled. Your style of photography has a strong bearing on how you'll use—or whether you'll use—Focus tracking with lock-on.

Focus tracking with lock-on has little to do with *how well* the camera focuses. Instead, it is concerned with *what* it is focused on. Here are some good reasons to leave Focus tracking with lock-on enabled in your camera.

If Focus tracking with lock-on is set to Off, Dynamic-area AF and Auto-area AF will instantly react to something coming between your subject and the camera. When you enable Focus tracking with lock-on, the camera will ignore anything that briefly gets between you and your subject. If you turn it off, your camera will happily switch focus to a closer subject even if it only appears in the frame for a moment. A good example of this is when you are tracking a moving subject and just as you are about to snap the picture, a closer or brighter object enters the edge of the frame and is picked up by an outside sensor. The camera may instantly switch focus to the intruding subject.

If you turn off Focus tracking with lock-on, you'll have a camera that doesn't know how to keep its attention on the subject you are trying to photograph if something interferes. When using Dynamic-area AF or Auto-area AF modes, I call turning off Focus tracking with lock-on "focus roulette!"

Configuring Custom setting a4 is not difficult. However, you'll need to decide just how long you want your camera to lock on to a subject before it decides that the subject is no longer available.

My Recommendation: I leave Focus tracking with lock-on enabled at all times. When I'm tracking a moving subject, I don't want my camera to be distracted by every bright object that gets in between me and the subject. Nikon gives us variable focus lock time-outs so we can change how long the camera will keep seeking the old subject, when we switch to a new one. I suggest you play around with this function until you fully understand how it works. Watch how long the camera stays locked on one subject's area before an intruding object grabs its attention. This is one of those functions that people either love or hate. Personally, I find it quite useful for my type of photography. Try it and see what it does for you.

AF Activation

Custom setting a5 (D300S and D300)

(User's Manual – D300S page 266; D300 page 271)

AF activation allows you to choose whether you want the Shutter-release button to cause the camera to autofocus. If you leave this setting at the factory default, the AF system

will be activated when you press the Shutter-release button halfway down or if you press the AF-ON button. You can also select the setting that allows only the AF-ON button to initiate autofocus and the Shutter-release button will not activate autofocus.

The primary purpose of this function is to allow a very experienced photographer to separate shutter release and autofocus operations. A sports photographer may only want to autofocus the camera when she presses the AF-ON button and not when she presses the Shutter-release button.

Various styles of photography require the photographer to find a good autofocus point with the AF-ON button and then fire many frames with the Shutter-release button, with no danger of the camera changing the autofocus during shutter release.

Here are the screens and steps used to configure AF activation (see Figure 4-10):

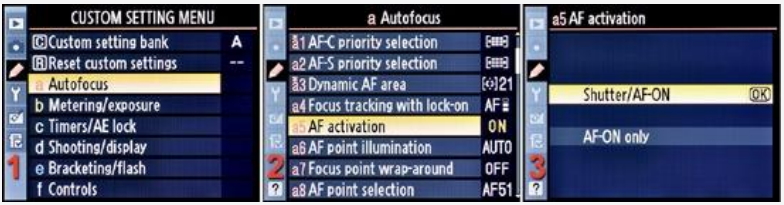


Figure 4-10. AF activation screens

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-10, image 1).
2. Highlight AF activation and scroll to the right (see Figure 4-10, image 2).

3. Choose one of the two choices from the menu. In Figure 4-10, image 3, Shutter/AF-ON has been selected.
4. Press the OK button to lock in the setting.

Here's a description of the two selections:

- ***Shutter / AF-ON*** – Autofocus will be activated if you press the Shutter-release button halfway or if you press the AF-ON button.
- ***AF-ON Only*** – Autofocus only works when you press the AF-ON button. The Shutter-release button will not activate autofocus; it will only start metering and release the shutter. There are two distinct needs addressed with this
  function. A few people need to separate autofocus and shutter release. Most don't. If you prefer to autofocus *only* with the AF-ON button, you can set it with this function. Otherwise, you'll autofocus by pressing the Shutter-release button halfway down. If you have Shutter/AF-ON selected, you can autofocus with either button.

My Recommendation: I use Shutter/AF-ON myself since I'm primarily a nature shooter and don't need to separate autofocus from shutter release. I don't have many fast moving subjects, other than flying birds or leaping deer. And with those, it just feels more natural to me to autofocus and fire the shutter with one button.

However, if I were shooting a high-speed event and wanted to maximize my camera's firing speed (frame rate), I wouldn't hesitate to use AF-ON only, and I would change Custom setting a1-AF-C priority selection to Release priority. That

would let me use my thumb to autofocus with the AF-ON button while my index finger is on the Shutter-release button firing bursts of images—using the Continuous high (CH) frame rate. I would only autofocus when needed and would use depth of field to cover small focus variations. That way, I could get as many pictures into my camera as possible for later publication choices.

AF Point Illumination

Custom setting a6 (D300S and D300)

(User's Manual – D300S page 266; D300 page 271)

AF point illumination helps you see the currently active AF points when you first start autofocus. You've seen the little squares—representing the active AF point or points—in the Viewfinder, when they briefly appear in red and then turn black. Sometimes the Viewfinder is dark, and it might be difficult to see a black square.

If AF point illumination is turned Off, you'll still have the black square that represents your selected AF point, but you may not be able to see it. If you set AF point illumination to Auto or On, the point will flash red when you first start autofocus or move the AF point with the Multi Selector.

There are three selections on the AF point illumination screen. These affect how the AF points are displayed when active.

Here's a list of each selection and a description of their functions:

- ***Auto*** **–** If the Viewfinder's background is dark, the selected AF point(s) will briefly flash red when you press the Shutter-release button or the AF-ON button to start autofocus. If the background is bright, you'll have no trouble seeing your AF point's little black squares, so they don't flash red when you start autofocus.
- ***On*** **–**
  The selected AF point is highlighted in red when you start autofocus, regardless of the light level of the background.
- ***Off*** **–** The selected AF point does *not* light up in red when you start autofocus. It always stays black.

First, let's examine the screens and steps to configure AF point illumination. Then we'll talk about how the settings work (see Figure 4-11).

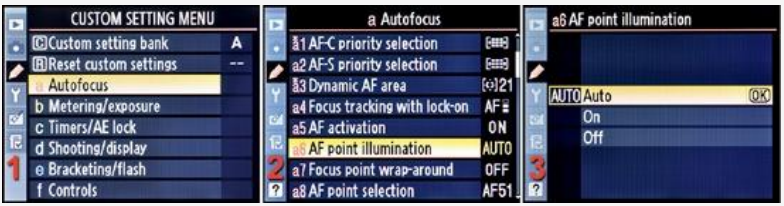


Figure 4-11. AF point illumination

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-11, image l).
2. Highlight AF point illumination and scroll to the right (see Figure 4-11, image 2).
3. Choose one of the three choices from the menu. In Figure 4-11, image 3, Auto has been selected.

4. Press the OK button to lock in the setting.

My Recommendation: The simplest setting to use is Auto, since that lets the camera determine whether there is enough light coming through the Viewfinder for you to see the AF point(s) at the start of autofocus. If you want to force the AF point(s) to flash each time you start autofocus or move the point(s) with the Multi Selector, you can set AF point illumination to On. I wouldn't leave this set to Off unless I was in a consistently lighted studio where the Viewfinder has good contrast.

Focus Point Wrap-Around

Custom setting a7 (D300S and D300)

(User's Manual – D300S page 267; D300 page 272)

Focus point wrap-around allows you to control how AF point scrolling on the Viewfinder works. When you are scrolling your selected AF point to the right or left, or even up and down, in the array of 51 points, it will eventually come to the edge of the Viewfinder area. This setting allows you to set whether the AF point simply stops when it gets to the edge or scrolls to the opposite side. If you are scrolling the AF point to the left and it reaches the far left side of the screen, it will stop. If Focus point wrap-around is set to Wrap, the point will not stop and will reappear on the right side of the screen. It "wraps" around. This setting works the same way in an up and down direction. If you scroll off the top of the sensor area, the AF point will reappear on the bottom when Wrap is enabled.

Here are the screens and steps used to configure Focus point wrap-around (see Figure 4-12):

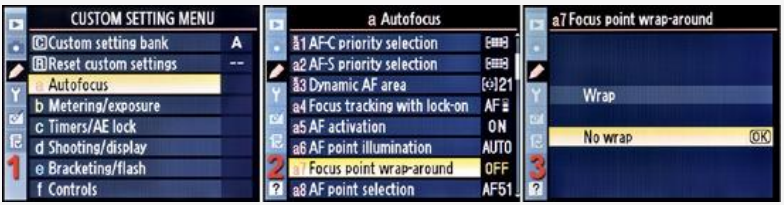


Figure 4-12. Focus point wrap-around

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-12, image 1).
2. Highlight Focus point wrap-around and scroll to the right (see Figure 4-12, image 2).
3. Choose one of the two choices from the menu. In Figure 4-12, image 3, No wrap has been selected.
4. Press the OK button to lock in the setting.

Here is a description of the two choices:

- ***Wrap*** – This setting allows the selected AF point to scroll off of the Viewfinder screen and then reappear on the other side.
- ***No wrap*** (default) – If you scroll the AF point to the edge of the screen, it stops there! You'll have to use the Multi Selector to move the point in the opposite direction, back toward the middle.

My Recommendation: Wrapping the AF point around from one side to the other drives me bonkers. I don't like it on my computer screen or in my camera's Viewfinder. When the AF

point gets to the edge, I want it to stop so that I can scroll back the other way with the Multi Selector. However, I humbly submit that some people will simply adore having their AF point wrap to the other side of the Viewfinder. If that describes you, simply set it to Wrap. It's always No wrap for me!

AF Point Selection

Custom setting a8 (D300S and D300)

(User's Manual – D300S page 267; D300 page 272)

AF point selection allows you to adjust the distance the AF point moves when you move it around the screen with the Multi Selector.

If you move your AF point often, it might get tiring to scroll through the full 51 focus points. In older Nikon cameras, we had a maximum of 11 sensors to scroll through, so it wasn't too bad. However, with 51 AF points, it could take longer than you want to scroll from one side of the Viewfinder to the other. Or, you might just like the old way better!

Nikon has given you a choice. If you'd rather not scroll through 51 sensors, you can set AF point selection to 11 sensors instead.

Figure 4-13, image 1, shows the 11-point setting, while image 2 shows the 51-point selection. This does *not* change the fact that there are 51 sensors available in Dynamic-area AF or Auto-area AF modes. It just means that the Multi Selector will make the selected sensor move farther with each press. It skips over sensors when you scroll in Single-area AF and

Dynamic-area AF modes. This means that you cannot choose "in-between" sensors as selected AF points, so you have a smaller choice of sensors to start autofocus.

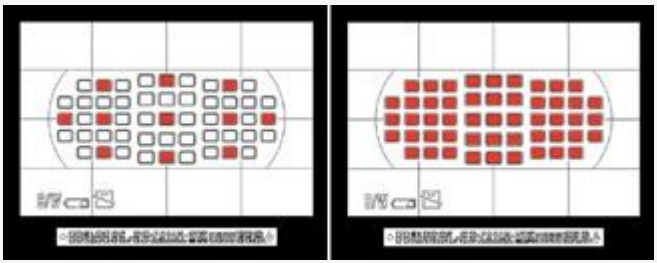


Figure 4-13. 11 AF points vs. 51 AF points

When using Auto-area AF, the camera does not allow you to move the AF points. So this function does not affect the camera when Auto-area AF is selected.

If you are unhappy when scrolling through 51 points, change it to 11. You can always change it back!

Here are the screens and steps to select one of the AF point selection settings (see Figure 4-14):

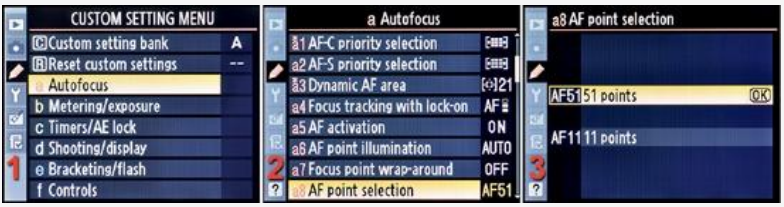


Figure 4-14. AF point selection

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-14, image 1).

2. Highlight AF point selection and scroll to the right (see Figure 4-14, image 2).
3. Choose one of the two choices from the menu. In Figure 4-14, image 3, 51 points has been selected.
4. Press the OK button to lock in the setting.

Here is a description of each AF point selection selection:

- ***51 points*** (default) – Choose from any of the 51 focus points (AF points) when you are scrolling through them.
- ***11 points*** – Choose from only 11 focus points (AF points) when you are scrolling through them. The other AF points are still available for autofocus, you just can't scroll directly to them—some are skipped. That means the Multi Selector will move the selected AF point around more quickly.

My Recommendation: I usually leave my camera set to 51 points for nature work since I have time to scroll among the AF points in an unhurried fashion. The only time I'll change that is when I need to shoot very quickly at an event that moves quickly, like a graduation ceremony or wedding. At these events I may not have time to scroll through all 51 points to select an AF point on the edge of the Viewfinder, so I'll set AF point selection to 11 points.

Remember, setting it to 11 points does not change how many sensors are actually used by the camera. It only effects how fast the AF point will move when you use the Multi Selector to scroll around. Some AF points are skipped during scrolling. You still get the benefit of the other 51 points, if they are set to be active.

Built-in AF-Assist Illuminator

Custom setting a9 (D300S and D300)

(User's Manual – D300S page 268; D300 page 273)

You've seen the little AF-assist illuminator light on the front of the D300(S), near the grip. Well, this setting allows you to control when that little light comes on. Nikon calls this function the Built-in AF-assist illuminator, and it lights up when low-light conditions are sensed and when using certain AF-area modes (not all) to help with autofocus.

We'll look into the two modes of this setting, but first here are the screens and steps to set Built-in AF-assist illuminator to On or Off (see Figure 4-15):

Figure 4-15. Built-in AF-assist illuminator

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-15, image 1).
2. Highlight Built-in AF-assist illuminator and scroll to the right (see Figure 4-15, image 2).
3. Choose On or Off from the menu. In Figure 4-15, image 3, On has been selected.

4. Press the OK button to lock in the setting.

Here are descriptions of how On or Off affects the AF-assist illuminator:

- ***On*** (default) – If the light level is low, the AF-assist illuminator lights up to help light the subject enough for autofocus. This only works in certain modes, though:
    1. Single-servo AF as a Focus mode at any time it's needed
    2. Auto-area AF as an AF-area mode at any time it's needed
    3. Single-point AF and Dynamic area AF as an AF-area mode if you are using only the center AF point as the selected sensor
- ***Off*** – The AF-assist illuminator does not light up to help you in low-light autofocus situations. The camera may not be able to autofocus in very low light.

My Recommendation: I leave Built-in AF-assist illuminator set to On most of the time. It is only activated when the light is low enough to need it. However, let me qualify this for specific circumstances.

If you are trying to take pictures without being noticed, such as from across the room with a zoom lens or while doing street photography, you certainly don't want this extremely bright little light drawing attention when you start autofocus. Or, you may be shooting wildlife, such as a giant grizzly bear, and surely don't want to call attention to yourself by shining a bright light into the old bear's eyes.

Use this feature when you don't want others to notice you—especially if they are 8-feet tall with claws and fangs—because it will draw attention immediately.

AF-ON for MB-D10

Custom setting aio (D300S and D300)

(User's Manual – D300S page 269; D300 page 274)

AF-ON for MB-D10 will only be used by those who have an MB-D10 battery pack attached to their camera body. This setting modifies how the AF-ON button on the MB-D10 works and provides some additional and useful functionality for MB-D10 users. It does not modify the functionality of the AF-ON button found on the D300(S) body.

First, we'll look at how to choose one of the AF-ON for MB-D10 screen's menu selections, and then we'll examine each choice in detail (see Figure 4-16).

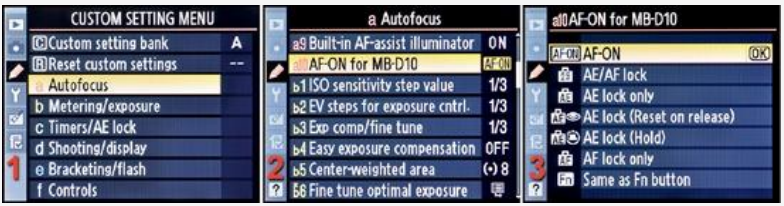


Figure 4-16. AF-ON for MB-D10

1. Select a Autofocus from the Custom Setting Menu and scroll to the right (see Figure 4-16, image 1).

2. Highlight AF-ON for MB-D10 and scroll to the right (see Figure 4-16, image 2).
3. Choose one of the seven items on the menu. In Figure 4-16, image 3, AF-ON has been selected.
4. Press the OK button to lock in the setting.

Here is a description of each choice:

- ***AF-ON*** – This setting, left the way it is, means that the AF-ON button on the MB-D10 battery pack will work exactly like the regular AF-ON button on the D300(S) body.
- ***AE/AF lock*** – The MB-D10's AF-ON button executes focus and exposure lock instead of normal AF-ON.
- ***AE lock only*** – The MB-D10's AF-ON button executes exposure lock instead of normal AF-ON.
- ***AE lock (Reset on release)*** – When the MB-D 10's AF-ON button is pressed, it executes an exposure lock. The exposure lock stays active until the AF-ON button is pressed a second time, the exposure meter shuts off, or the shutter is released.
- ***AE lock (Hold)*** –
  When the MB-D10's AF-ON button is pressed, it executes an exposure lock. The exposure lock stays active until the AF-ON button is pressed a second time or the exposure meter shuts off.
- ***AF lock only*** – When MB-D10's AF-ON button is held down, it executes an exposure lock.

- ***Same as Fn (FUNC.) button –*** The MB-D10's AF-ON button performs whatever function has been selected in the Custom Setting called Assign Fn button (Custom setting f5 in D300S and f4 in D300).

My Recommendation: When I'm using the MB-D10 on my camera, I want the extra AF-ON button to perform just like the AF-ON button on the camera body, so I set it to AF-ON in the menu. If you use auto exposure (AE-L) or autofocus (AF-L) lock often, you may feel differently. In that case, select your favorite function from the menu. Normally, you'll only use this extra AF-ON button when shooting a vertical image.

Section Two – (b) Metering/ Exposure: Custom Settings b1 to b6

You'll find 6 settings within the Metering/exposure menu in both the D300S and D300. There are no numbering variances between the two cameras in this section:

▪ ISO sensitivity step value	(b1 in both D300/D300S)
▪ EV steps for exposure cntrl.	(b2 in both D300/D300S)
▪ Exp comp/fine tune	(b3 in both D300/D300S)
▪ Easy exposure compensation	(b4 in both D300/D300S)
▪ Center-weighted area	(b5 in both D300/D300S)
▪ Fine tune optimal exposure	(b6 in both D300/D300S)

The first three custom settings in the Metering/exposure menu (b1, b2, b3) affect how your camera views steps in its EV range. Most people like to have their camera work very precisely, so they'll use the 1/3 step EV selection of b1, b2, and b3.

Others might not be as selective and would prefer to change sensitivity in 1/2 step EV or even whole steps.

What is an EV?

EV simply means "Exposure Value", which is an agreed-upon value of exposure metering. It is spoken of in full or partial EV steps, like 1/3, 1/2, or 1. It simply means different combinations of shutter speeds and apertures that give similar exposures. An EV step corresponds to a standard logarithmic "power-of-2" exposure step, commonly referred to as a "stop". So, instead of saying "1 EV", you could substitute "1 stop". EV 0 (zero) corresponds to an exposure time of 1 second at an aperture of f/1.0, or 15 seconds at f/4. EV can be positive or negative. EV -6 equals 60 seconds at f/1.0. EV 10 equals 1/1000s at f/1.0 or 1/60s at f/4. The EV step system was invented in Germany back in the 1950s. Interesting, huh?

ISO Sensitivity Step Value

Custom setting b1 (D300S and D300)

(User's Manual – D300S page 270; D300 page 275)

ISO sensitivity step value allows you to change the way the camera handles its progression of exposure values for ISO. In other words, the camera's ISO "step" value is set with Custom setting b1. You can control the steps with the following values:

- 1/3 step EV (ISO steps 200, 250, 320, 400, etc.)
- 1/2 step EV (ISO steps 200, 280, 400, 560, etc.)
- 1 step EV (ISO steps 200, 400, 800, 1600, etc.)

If you are concerned with maximum ISO control, then use the 1/3 step setting. It takes longer to scroll through the ISO selections if you manually set your ISO value in 1/3 steps. The 1/3 step setting is the factory default value for b1.

Here are the screens and steps to change the ISO sensitivity step value (see Figure 4-17):

Figure 4-17. ISO sensitivity step value

1. Select b Metering/exposure from the Custom Setting Menu and scroll to the right (see Figure 4-17, image 1).
2. Highlight ISO sensitivity step value and scroll to the right (see Figure 4-17, image 2).
3. Choose one of the three items on the menu. In Figure 4-17, image 3, 1/3 step has been selected.
4. Press the OK button to lock in the setting.

Now, let's talk more about how to use the ISO sensitivity step value setting. With ISO sensitivity step value set to 1/3 step, hold down your camera's ISO button on the top left of the camera and turn the rear Main command dial to the right. If your camera was set to ISO 200 initially, you'll see that the ISO number in the Control panel changes in the following pattern:

- 200, 250, 320, 400, 500, 640, etc.

Now, if you set ISO sensitivity step value to 1/2 step instead, the pattern looks like this:

- 200, 280, 400, 560, 800, 1100, etc.

Finally, if you set ISO sensitivity step value to 1 step, the pattern changes as follows:

- 200, 400, 800, 1600, 3200, and Hi 1 (6400)

Clearly, these are one full step (or stop) changes in ISO sensitivity values. You can be as tight as 1/3 step EV or as loose as 1 step EV when you change sensitivity.

My Recommendation: I like the most control I can have over ISO sensitivity increments. I normally leave this set to the factory default of 1/3 step. This allows me to carefully fine-tune the ISO sensitivity value for precise exposures.

EV Steps for Exposure Cntrl.

Custom setting b2 (D300S and D300)

(User's Manual – D300S page 270; D300 page 275)

EV steps for exposure cntrl. refers to the number of steps in the shutter speed and aperture since those are your main exposure controls. It also encompasses the exposure bracketing system. Just as with the ISO sensitivity covered in the last section, you can control the number of steps in the full range of exposure values.

Here are the three settings available for exposure control:

- 1/3 step (EV is 1/3 step; bracketing can be 1/3, 1/2, or 1 EV)
- 1/2 step (EV is 1/2 step; bracketing can be 1/2 or 1 EV)
- 1 step (EV and bracketing are 1 EV each)

Here are the screens and steps used to adjust EV steps for exposure cntrl. (see Figure 4-18):

Figure 4-18. EV steps for exposure cntrl.

1. Select b Metering/exposure from the Custom Setting Menu and scroll to the right.
2. Highlight EV steps for exposure cntrl. and scroll to the right (see Figure 4-18, image 2).
3. Choose one of the three items on the menu.
4. Press the OK button to lock in the setting.

Now, let's examine the concept in more detail. All EV steps for exposure cntrl. really means is that when you are adjusting the shutter speed and aperture manually, they will work incrementally in the following steps.

Shutter and Exposure (starting at a random shutter speed or aperture)

1/3 step EV:	
Shutter:	1/100, 1/125, 1/160, 1/200, 1/250, 1/320, etc.
Aperture:	f/5.6, f/6.3, f/7.1, f/8, f/9, f/10, etc.
1/2 step EV:	
Shutter:	1/90, 1/125, 1/180, 1/250, 1/350, 1/500, etc.
Aperture:	f/5.6, f/6.7, f/8, f/9.5, f/11, f/13, etc.
1 step EV:	
Shutter:	1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, etc.
Aperture:	f/4, f/5.6, f/8, f/11, f/16, f/22, etc.

Bracketing

1/3 step EV:	Bracket: 0.3, 0.7, 1.0 (or 1/3, 2/3, 1 EV steps)
1/2 step EV:	Bracket: 0.5, 1.0 (or 1/2 and 1 EV steps)
1 step EV:	Bracket: 1.0 (or 1 EV step)

Nikon chose to lump shutter speed, aperture, and bracketing all under Custom setting b2. The factory default value for EV steps for exposure cntrl. is 1/3 step.

My Recommendation: Similar to ISO sensitivity step value, I keep EV steps for exposure cntrl. set to 1/3 step. It's critical to control the EV steps with granularity, especially with exposure. It's best to increment the EV in small steps for use with the histogram.

Exp Comp/Fine Tune

Custom setting b3 (D300S and D300)

(User's Manual – D300S page 270; D300 page 275)

Exp comp/fine tune is concerned with the granularity of exposure or flash compensation. Most of us will use the exposure or flash compensation system at one time or another.

Exposure compensation adjustments are made with the +/- Exposure compensation button on the top right of the camera, just behind the Shutter-release button. The Flash compensation button is right below the button that opens the pop-up Speedlight flash on the front of the camera. It has a small lightning bolt arrow icon.

Holding the Exposure compensation button and turning the rear Main command dial allows you to adjust the exposure compensation. Holding the Flash compensation button and turning the front Sub-command dial allows you to adjust flash compensation.

Maybe the camera's light meter or flash is giving your images a little less exposure than you'd like, so you fine-tune by adding a little extra exposure with the Exposure compensation or Flash compensation button. These buttons can be

configured by setting b3 so that they work in a finer or coarser way for exposure fine-tuning. Compensation can be added or subtracted in 1/3, 1/2, or 1 EV steps—up to 5 EV (5 stops).

Here are the screens and steps used to adjust Exp comp/fine tune (see Figure 4-19):

Figure 4-19. Exp comp/fine tune

1. Select b Metering/exposure from the Custom Setting Menu and scroll to the right (see Figure 4-19, image 1).
2. Highlight Exp comp/fine tune and scroll to the right (see Figure 4-19, image 2).
3. Choose one of the three items on the menu. In Figure 4-19, image 3, 1/3 step has been selected.
4. Press the OK button to lock in the setting.

Here is more information on the step values you can use with Exp comp/fine tune for exposure or flash compensation once you've selected your favorite increment:

- ***1/3 step:*** +/- Exposure/Flash EV compensation of 0.3, 0.7, 1.0, 1.3, 1.7, 2.0, 2.3, 2.7, 3.0, etc. (up to 5.0), plus or minus
- ***1/2 step:***

+/- Exposure/Flash EV compensation of 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, etc. (up to 5.0), plus or minus

- ***1 step:*** +/- Exposure/Flash EV compensation of 1.0, 2.0, 3.0, 4.0, 5.0, plus or minus

My Recommendation: The factory default for Exp comp/ fine tune is 1/3 step. Most shooters will leave it set to 1/3 step since that allows fine control over the amount of exposure or flash compensation. Like the two previous Custom settings (b1 and b2), b3 allows you to have fine or coarse control over compensation values. 1/3 step EV seems to be the best for most of us.

Easy Exposure Compensation

Custom setting b4 (D300S and D300)

(User's Manual – D300S page 271; D300 page 276)

Easy exposure compensation took me a bit of thinking to wrap my brain around. The bottom line is that you can set the camera exposure compensation without using the +/- Exposure compensation button.

There are three settings in Easy exposure compensation, as follows: Reset On (Auto reset), On, and Off. Here are the screens and steps used to configure Easy exposure compensation (see Figure 4-20):

Figure 4-20. Easy exposure compensation

1. Select b Metering/exposure from the Custom Setting Menu and scroll to the right (see Figure 4-20, image 1).
2. Highlight Easy exposure compensation and scroll to the right (see Figure 4-20, image 2).
3. Choose one of the three items on the menu. In Figure 4-20, image 3, Off has been selected.
4. Press the OK button to lock in the setting.

If you set the camera to Reset On (Auto reset) or simply to On, you can use the Command dials to set exposure compensation instead of the normal +/- Exposure compensation button. Off means what it says. If you use the normal +/- Exposure compensation button, it overrides the settings of Easy exposure compensation. Each exposure mode (P, S, A, M) reacts somewhat differently to Easy exposure compensation.

Let's consider how the P-Program, S-Shutter Priority, and A-Aperture Priority modes act when you use the three settings above.

The M-Manual mode does not seem to be affected by Custom setting b4, although it does work with the normal +/- Exposure compensation button.

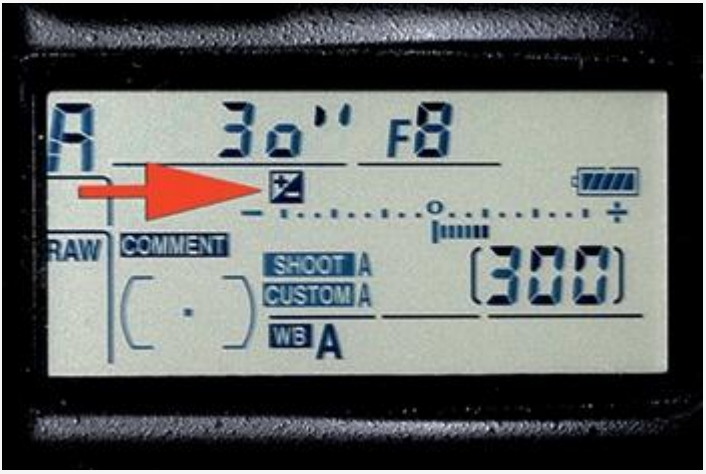


Figure 4-21. Exp. compensation

Notice in Figure 4-21 how the Control panel uses the +/- icon to show that compensation value has been dialed into the camera. Here are the values, and how they work:

- ***Reset On (Auto reset)*** – Using the Sub-command dial in P-Program or S-Shutter Priority modes, or the Main command dial in A-Aperture Priority mode, you can dial in exposure compensation without using the normal +/-Exposure compensation button. Once you allow the meter to go off, or turn the camera off, the compensation value you dialed in is reset back to 0. That's why it's called Auto reset. If you have already set a compensation value using the normal +/- Exposure compensation button, then the process of dialing in compensation with the Sub-command dial simply adds more compensation to what you originally put in with the +/- Exposure compensation button. When the meter resets, it only

returns back to the compensation value you added with the +/- Exposure compensation button and not to 0.

- ***On*** – This works the same way as Reset On (Auto reset), except that the compensation you've dialed in does not reset but stays in place, even if the meter or camera is turned off.
- ***Off*** – Only the normal +/- Exposure compensation button applies exposure compensation.

Note: The granularity of Easy exposure compensation's EV step fine-tuning is affected by Custom setting b3's 1/3, 1/2, or 1 step setting. Also, the Command dials used to set compensation can be swapped in Custom setting f8 (D300S) or Custom setting f7 (D300), which we will consider later in this chapter.

Center-Weighted Area

Custom setting b5 (D300S and D300)

(User's Manual – D300S page 272; D300 page 277)

Center-weighted area allows you to control the area on the Viewfinder that has the greatest weight in metering a subject when in Center-weighted area metering mode. Years ago our cameras didn't have Matrix metering. Back in the good old days, we all had averaging or partially averaging meters or none at all.

If you prefer not to use Nikon's built-in database of image scenes, otherwise know as Matrix metering, and you only use Spot metering as needed, you are most likely using the

Center-weighted area meter. It's cool that Nikon gives us a choice. You have three meter styles in your camera, thereby adding to its chameleon status.

On the camera's back, between the Viewfinder eyepiece and the AF-ON button, you'll find the AE-L/AF-L button (see Figure 4-22). Surrounding the AE-L/AF-L button is a small knurled ring called the Metering selector.

Figure 4-22. Metering mode

It has a white line pointing to three symbols on the left of the ring. The top symbol is the Center-weighted area meter (red arrow), the middle is the Matrix meter, and the bottom is the Spot meter.

We are concerned with the Center-weighted area meter in this section.

The Center-weighted area meter can be configured to use a central area of the Viewfinder to do most of its metering, with less attention paid to subjects outside this area, or it can be set up to simply average the entire frame.

Here are the five settings used by the camera's Center-weighted area metering system:

- 6 or 6mm
- 8 or 8mm
- 10 or 10mm
- 13 or 13mm
- Avg or Average

Here are the screens and steps used to choose a Center-weighted area metering mode (see Figure 4-23):

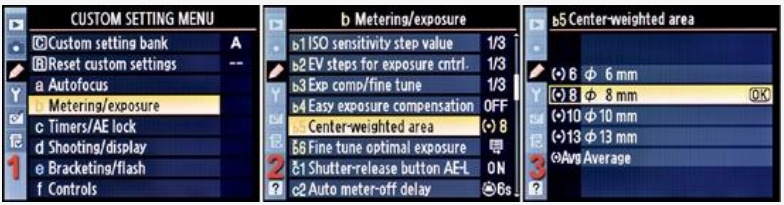


Figure 4-23. Center-weighted area

1. Select b Metering/exposure from the Custom Setting Menu and scroll to the right (see Figure 4-23, image 1).
2. Highlight Center-weighted area and scroll to the right (see Figure 4-23, image 2).
3. Choose one of the five items on the menu. In Figure 4-23, image 3, 8mm has been selected.
4. Press the OK button to lock in the setting.

Let's see how each mode works. Figure 4-24 shows the approximate size of the most sensitive area in the Viewfinder

for each step of the Center-weighted area meter. The pink circle is the most sensitive area for metering, and it gets larger for each setting. In the final frame of Figure 4-24, the entire frame is equally sensitive and averages everything seen in the Viewfinder.

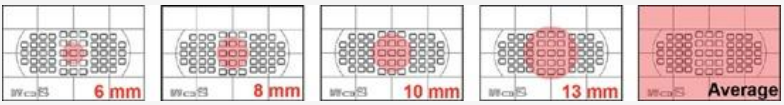


Figure 4-24. Center-weighted metering pattern areas shown in pink

When using the Center-weighted area metering mode, the metering system uses an invisible circle in the center of the Viewfinder to meter the subject. Setting it down to 6mm makes it almost small enough to be a spot meter because the real Spot metering mode of the camera uses a 3mm circle surrounding the currently selected AF point.

The Center-weighted area meter does not move around with the currently selected AF point as the true Spot meter does. Instead, it assigns the greatest weight to the center of the Viewfinder frame, and everything outside the circle in the center is not as important.

Each size increase from 6, 8, 10, to 13mm will increase the sensitivity of the center of the Viewfinder so that more emphasis is given to a larger area in the middle.

If you select the Avg – Average setting, the entire Viewfinder frame is used to meter the scene. The camera takes an average of the entire frame by including all light and dark areas mixed together for an averaged exposure.

My Recommendation: When I use the Center-weighted area meter, I generally use the 13 mm setting to make the largest area of the center of the Viewfinder be the most sensitive section. Personally, I use 3D Matrix metering most of the time and have my camera's Fn (FUNC.) button set up to switch to the Spot meter temporarily. That way, I am using Nikon's incredible 3D Color Matrix system, with its ability to consider brightness, color, distance, and composition. Matrix gives me the best metering I've had with any camera yet! The Center-weighted area meter is still included in our modern cameras to make people who are used to using the older style meter more comfortable. Most of us will use Matrix metering these days.

Fine Tune Optimal Exposure

Custom setting b6 (D300S and D300)

(User's Manual – D300S page 272; D300 page 277)

Nikon has taken the stance that most major camera systems should allow the user to fine-tune them. The exposure system is no exception. Fine tune optimal exposure allows you to fine-tune the Matrix, Center-weighted area, and Spot metering systems by + 1/-1 EV in 1/6 EV steps.

In other words, you can force each of the three metering systems to add or deduct a little exposure from what it normally would use to expose your subject. This stays in effect with no further notice until you set it back to zero. It is indeed fine-tuning, since the maximum 1 EV step up or down is divided into 6 parts (1/6 EV). If you feel that your camera is too conservative with the highlights, mildly underexposing,

and you want to force it to add 1/2 step exposure, you simply add 3/6 EV to the compensation system for that metering system. (Remember basic fractions—where 1/2 equals 3/6?)

This works like the normal compensation system, except it only allows you one EV of compensation. As screen 3 of Figure 4-25 shows, an ominous looking warning appears, telling you that your camera will not show a compensation icon, as it does with the normal +/- Exposure compensation button, when you use the metering fine-tuning system. This simply means that while you have this fine-tuning system dialed in for your light meter, the camera will not remind you that it is fine-tuned by showing you a compensation icon. If it did turn on the compensation icon (+/- on the Control panel and in the Viewfinder), then how could it show you the same icon when you are using normal compensation at the same time as meter fine-tuning?

This light meter fine-tuning only applies to the Custom setting bank you are currently working with. If you are working in bank A, banks B, C, and D are not changed.

Here are the screens and steps to fine-tune the metering system's exposure (Figure 4-25):

Figure 4-25. Center-weighted area fine-tuning screens

1. Select b Metering/exposure from the Custom Setting Menu and scroll to the right (Figure 4-25, image 1).
2. Select Fine tune optimal exposure and scroll to the right (Figure 4-25, image 2).
3. Select Yes from the warning screen and scroll to the right (Figure 4-25, image 3).
4. Select the metering system you want to adjust. In Figure 4-25, image 4, I selected Matrix metering. Now, scroll to the right.
5. Scroll up or down in 1/6 EV steps, until you reach the fine-tuning value you would like to use (Figure 4-25, image 5).
6. Press the OK button to lock in the fine-tuning value for that metering system you selected in step 4. *You must fine-tune each metering system separately*.

That's all there is to it! Just remember that you have Fine tune optimal exposure turned on, since the camera will not remind you. Watch your histogram to make sure that you're not regularly underexposing or overexposing images once you have the fine-tuning adjustment in place. If so, just go back in and adjust the fine-tuning up or down, or turn it off.

My Recommendation: Fine tune optimal exposure is a rather controversial setting. However, I find that I have better pictures when I run the Matrix meter 3/6 (1/2 EV step) over the normal setting. Why? Well, Matrix metering seems a bit conservative to me and tends to work hard to keep from blowing out the highlights in an image. It seems to underexpose my images by about 1/3 EV step, most of the time. I am judging this by the fact that on most of my Matrix meter exposed images, the histogram doesn't quite make it to the light-side edge of the histogram window, which I prefer. I like to expose for the highlights, yet my camera always slightly underexposes. I had exactly the same results from my original D300, and now also with my newer D300S.

My reaction is simply to increase the exposure just a little and force the histogram to the right edge. This can be dangerous because slightly overexposed images tend to blow out all detail. So I carefully examine the histogram on important images to make sure it is where I want it to be. When I run Matrix metering over by 3/6, the histogram is usually right where I like it.

Remember, please, that this is an experiment for each of us. If you choose to fine-tune any of the three metering systems, you should test it well before doing an important shoot. I am basing my fine-tuning experience on my own imaging style and results and can't guarantee that you'll get the same good

effects with a more aggressive Matrix meter. It certainly won't hurt you to play with these settings, as long as you remember to set them back too when you're done—if it doesn't perform the way you expect.

Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4

You'll find 4 distinct settings within the Timers/AE lock menu in both the D300S and D300. There are no numbering variances between the two cameras in this section:

▪ Shutter-release button AE-L	(c1 in both D300/D300S)
▪ Auto meter-off delay	(c2 in both D300/D300S)
▪ Self-timer (delay)	(c3 in both D300/D300S)
▪ Monitor off delay	(c4 in both D300/D300S)

Shutter-Release Button AE-L

Custom setting c1 (D300S and D300)

(User's Manual – D300S page 273; D300 page 279)

Shutter-release button AE-L is designed to allow you to lock your camera's exposure when you press the Shutter-release button halfway down. Normally that type of exposure lock only happens when you press and hold the AE-L/AF-L button. However, when you have Shutter-release button AE-L set to On, your camera will act like you've pressed the AE-L/AF-L button every time you start autofocus and take a picture.

This function allows you to meter from one area of the scene and then recompose to another area without losing the meter reading from the first area—as long as you hold the Shutter-release button halfway down.

Looking at this from another direction, when you have Shutter-release button AE-L set to Off, exposure will only lock when you have the AE-L/AF-L button held down—the normal way.

Here are the screens and steps used to configure Shutter-release button AE-L (see Figure 4-26):

Figure 4-26. Shutter-release button AE-L

1. Select c Timers/AE lock from the Custom Setting Menu and scroll to the right (see Figure 4-26, image 1).
2. Highlight Shutter-release button AE-L and scroll to the right (see Figure 4-26, image 2).
3. Choose one of the two choices on the menu. In Figure 4-26, image 3, On has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: I only use this feature when I really need it, then turn it off. The rest of the time, I just use the AE-L/AF-L button to lock my exposure. I don't think I'd

leave Shutter-release button AE-L turned on all the time since I might be holding the Shutter-release button halfway down to track a moving subject through light and dark areas.

For sunset shooters (or something similar) who like to include the sun in their image, this is a nice function. You can meter from an area of the sky that has the best color and then swing the camera around to include the sun in the shot. The camera will expose for the originally metered area as long as you hold the Shutter-release button halfway down. Normally, you'd just do this with the AE-L/AF-L lock button.

Auto Meter-Off Delay

Custom setting C2 (D300S and D300)

(User's Manual – D300S page 273; D300 page 279)

Auto meter-off delay controls the amount of time that your camera's light meter stays on after you press the Shutter-release button halfway and then release it. The default value is 6 seconds.

When the light meter goes off, the various displays—like shutter-speed and aperture—in the Control panel and Viewfinder do also.

If you would like your light meter to stay on longer for whatever reason, such as for multiple-exposures, you can adjust it to the following settings:

- 4s – 4 seconds
- 6s – 6 seconds (default)

- 8s – 8 seconds
- 16s – 16 seconds
- 30s – 30 seconds
- 1 min – 1 minute
- 5 min – 5 minutes
- 10 min – 10 minutes
- 30 min – 30 minutes
- ∞ – No limit (meter stays on)

Here are the screens and steps to set the Auto meter-off delay (see Figure 4-27):

Figure 4-27. Auto meter-off delay

1. Select c Timers/AE lock from the Custom Setting Menu and scroll to the right (see Figure 4-27, image 1).
2. Highlight Auto meter-off delay and scroll to the right (see Figure 4-27, image 2).
3. Choose one of the 10 choices on the menu. In Figure 4-27, image 3, 6 s has been selected. You can't see all the available menu selections in image 3. Scroll

down on the menu to find two more settings, 30 min and No limit.

4. Press the OK button to lock in the setting.

My Recommendation: There are times when you want the light meter to stay on longer, or for less time, than normal. When I'm shooting multiple exposures, I set Auto meter-off delay to No limit. However, when I'm shooting normally, it stays at either 6 s or 8 s. The longer the meter stays on, the shorter the battery life, so only extend the meter time if you really need it. You can adjust it from 4 s to No limit. Easy enough!

Self-Timer (Delay)

Custom setting C3 (D300S and D300)

(User's Manual – D300S page 273; D300 page 280)

The D300S and D300 vary the name of this setting by one word. The D300S calls it Self-timer, while the D300 calls it Self-timer delay. It works exactly the same way.

When you select self-timer on the Release mode dial and press the Shutter-release button the self-timer activates and waits for the Self-timer delay to end and then fires the shutter. You can adjust the time of this delay from 2 seconds to 20 seconds.

When you set your camera's self-timer for those group shots or self-portraits, do you find yourself running like a wild person trying to get in position before the camera fires? Have you ever knocked anyone or anything down or tripped and

made a fool of yourself in the process? Come on now, admit it. I know I have!

Well, those problems are solved with the camera's adjustable Self-timer delay. Whether you are shooting a group shot or just using the self-timer as a cheap cable release, it's good to be able to adjust the time before release with Self-timer delay.

Here is a list of the four available Self-timer delay settings:

- 2 s – 2 seconds
- 5 s – 5 seconds
- 10 s – 10 seconds (default)
- 20 s – 20 seconds

Here are the screens and steps used to configure the Self-timer delay (see Figure 4-28):

Figure 4-28. Self-timer delay

1. Select c Timers/AE lock from the Custom Setting Menu and scroll to the right (see Figure 4-28, image 1).
2. Highlight Self-timer on the D300S or Self-timer delay on the D300, and scroll to the right (see Figure 4-28, image 2).

3. Choose one of the four choices on the menu. In Figure 4-28, image 3, 5s has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: Often, if I don't want to take the time to plug in a remote release cable, I'll just put my camera on a tripod and set the Self-timer delay to 2 or 5 seconds. This lets the D300(S) make a hands-off exposure to keep from shaking the camera or tripod. If I must run to get into position for a group shot, I'll often increase the delay to at least 10s (10 seconds) to keep from looking like an idiot as I trip while running and plow up grass with my nose.

> Another Way to Delay the Shutter-Release
>
> Many do not realize it, but you can also use the Mirror-Up (MUP) function on the Release mode dial for even steadier timed releases. If you use a tripod and start an exposure with the camera set to Mirror-Up, the camera will wait 30 seconds and then fire the shutter before lowering the mirror. Macro shooters often use either Mirror-Up or Self-timer delay to get the sharpest possible images.

Monitor Off Delay

Custom setting C4 (D300S and D300)

(User's Manual – D300S page 274; D300 page 280)

Monitor off delay lets you set a time-out for the Monitor on the back of the camera. You can select from 4 seconds to 10 minutes on the D300S and from 10 seconds to 10 minutes on

the D300. The Monitor will stay on until the time-out period expires.

When I take a picture, I like to review it on the Monitor. I am an admitted and shameless "chimper" (slang for excessively viewing the image playback). In the old film days, one could not tell whether the image was just right. Now that I have an opportunity, I love to look at each image. If it looks good, I move on to another image opportunity.

The D300S and D300 have a *major variation* in the way they handle this time-out. The D300S allows you to select individual display time-outs for the following:

- Playback
- Menus
- Information display
- Image review

The D300 puts all of those under the *one* Monitor off delay time-out instead, with no way to change them individually.

Here are the delay values available for the D300S (all values except 4 seconds are available for the D300):

- 4 s – 4 seconds
- 10 s – 10 seconds
- 20 s – 20 seconds
- 1 min – 1 minute
- 5 min – 5 minutes
- 10 min – 10 minutes

First, let's examine the D300S method, with individual time-outs, and then we'll look at how the D300 does it with its single time-out value.

D300S Only – Monitor Off Delay

The D300S has more functionality built into the Monitor off delay section than the D300 does. You can set a different Monitor off delay for each of the four displays on the D300S.

Here are the screens and steps to set Monitor off delay for each of the four D300S display types (see Figure 4-29):

1. Select c Timers/AE lock from the Custom Setting Menu and scroll to the right (Figure 4-29, image 1).
2. Highlight Monitor off delay and scroll to the right (Figure 4-29, image 2).

Figure 4-29. Monitor off delay – D300S only

3. Choose one of the four choices on the menu, as shown in Figure 4-29, image 3. Each of these lets you set the Monitor off delay for that specific display. They all have the same delay time-outs available, and they all work exactly the same. Scroll to the right.
4. Figure 4-29, image 4, shows the actual delay times for the display selected in Figure 4-29, image 3 (Playback). Choose from 4 seconds to 10 minutes delay time.
5. Press the OK button to lock in the setting.

Now, let's see how Monitor off delay works for the D300. It's actually simpler since the camera doesn't let you control the four display time-outs individually, but instead lumps them all under one time-out.

D300 Only – Monitor Off Delay

The D300 uses the same Monitor off delay time-outs for all displays that use the Monitor. Here are the screens and steps to set Monitor off delay (see Figure 4-30):

Figure 4-30. Monitor off delay – D300 only

1. Select c Timers/AE lock from the Custom Setting Menu and scroll to the right (see Figure 4-30, image 1).
2. Highlight Monitor off delay and scroll to the right (see Figure 4-30, image 2).
3. Choose one of the five time-out choices on the list. In Figure 4-30, image 3, 10 s has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: I set Monitor off delay to 1 min for Playback, Information display, and Image review on my D300S. I set the D300S Menus time-out to 5 min, since I like to scroll around for longer periods as I set various settings in the menus. With my D300, I select 1 min, which sets that time-out for all display types.

If you want to conserve battery power, leave the Monitor off delay set to a low value like 4 to 20 seconds. The longer the monitor stays on, the shorter the battery life, so only extend the monitor time if you really need it. Like a small notebook computer screen, that big luxurious 3-inch VGA resolution LCD pulls a lot of power. The Monitor and Control panel backlights are probably the biggest power drains in the entire camera.

However, you don't need to be overly concerned about this. As much image review (chimping) as I do, I can still shoot all day on one battery charge.

Section Four – (d) Shooting/ Display: Custom Settings d1 to d12

Within the Shooting/display menu, you'll find 12 settings in the D300S and 11 in the D300. The Custom Setting numbers within this section differ in the D300S and D300, as explained in the parentheses following the setting name:

▪ Beep	(d1 in both D300/D300S)
▪ Viewfinder grid display	(d2 in both D300/D300S)
▪ Viewfinder warning display	(d3 in both D300/D300S)
▪ Screen tips (D300S only)	(d4 in D300S)
▪ CL mode shooting speed	(d5 in D300S and d4 in D300)
▪ Max. continuous release	(d6 in D300S and d5 in D300)
▪ File number sequence	(d7 in D300S and d6 in D300)
▪ Information (Shooting info) display	(d8 in D300S and d7 in D300)
▪ LCD illumination	(d9 in D300S and d8 in D300)

▪ Exposure delay mode	(d10 in D300S and d9 in D300)
▪ MB-D10 battery type	(d11 in D300S and d10 in D300)
▪ Battery order	(d12 in D300S and d11 in D300)

Beep

Custom setting d1 (D300S and D300)

(User's Manual – D300S page 275; D300 page 281)

The Beep setting allows your camera to inform you of good autofocus by beeping. During Self-timer operations, the camera beeps continuously and flashes the AF-assist illuminator.

You can set the camera to beep with a high-pitched or low-pitched sound. The low-pitched sound is not very loud, while the high-pitched sound is quite audible.

The camera's self-timer Beep function lets you know when the Self-timer delayed shutter is about to fire. It counts down the seconds with a beep or two per second, then at the last moment it doubles the beeping frantically as if to say, "Hurry up!"

Here are the settings you will find under Beep in the Custom Setting Menu (see Figure 4-31): High, Low, and Off.

If Beep is enabled, the camera will let you know when you have focused successfully in Single-servo Autofocus (AF-S) by beeping once. It does not beep in Continuous-servo Autofocus (AF-C) since it would be beeping constantly as the focus adjusts to the subject. Also, if you have Custom setting a2 > AF-S priority selection configured to Release priority, the beep will not sound for autofocus in AF-S.

When Beep is active, you'll see a little musical note displayed in the top Control panel and also in the Information display.

Here are the screens and steps used to select one of Beep's three choices (see Figure 4-31):

Figure 4-31. Beep

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-31, image 1).
2. Highlight Beep and scroll to the right (see Figure 4-31, image 2).
3. Choose one of the three choices on the list. In Figure 4-31, image 3, Off has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: If I were using my camera in a quiet area, why would I want it beeping and disturbing those around me? I can just imagine me zooming in on that big grizzly bear, pressing the Shutter-release button, and listening to the grizzly roar his displeasure at my camera's beep. I want to live, so I turn off Beep.

You might want the reassurance of hearing the beep when AF has been confirmed or when the Self-timer is counting down. If so, turn it on. The AF-assist illuminator flashes during self-timer operations, so I generally use that instead of the beep.

This is another of those functions that you either love or hate. You can have it either way, but be careful around big wild animals when Beep is enabled. They might think you're calling them to supper, and you may be the main course.

I don't like my camera beeping at me. As a matter of fact, the beep sound sets up a harmonic resonance within the bones of my skull and causes my eyeballs to vibrate. I don't like it! You may love it. Either way, we can both have our wish.

By the way, Beep is automatically disabled when you're using the new Q or Quiet-shutter release mode on the D300S—regardless of how this Custom Setting is configured.

Viewfinder Grid Display

Custom setting d2 (D300S and D300)

(User's Manual – D300S page 275; D300 page 281)

A few years ago, the 35mm film Nikon N80/F80 was released with a viewfinder grid display, and I was hooked. Later, as I bought more professional cameras, I was chagrined to find that they did not have the on-demand gridlines that I had grown to love.

With the D300(S), you have not only a Viewfinder grid display, but also Live View (LV) gridlines. The best of both worlds! There are only two selections in Viewfinder grid display:

- On – Gridlines are displayed in the Viewfinder and on the Monitor in LV mode.
- Off – No gridlines are displayed.

Here are the screens and steps used to enable/disable the Viewfinder grid display (see Figure 4-32):

Figure 4-32. Viewfinder grid display

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-32, image 1).
2. Highlight Viewfinder grid display and scroll to the right (see Figure 4-32, image 2).
3. Choose one of the two choices on the list. In Figure 4-32, image 3, On has been selected.

4. Press the OK button to lock in the setting.

My Recommendation: I use these grid lines to line up things as I shoot so that I won't have weird tilted horizons and such. Many of us tend to tilt the camera one way or another, and grid lines help us see that we've tilted the frame.

I especially enjoy shooting with grid lines enabled when I'm down at the beach. Who needs tilted ocean views? When shooting architecture, the grid lines are invaluable for making sure buildings, walls, and doors are correctly oriented. There are lots of ways to use the Viewfinder grid display.

If you set Viewfinder grid display to On, I doubt that you'll turn it back Off. The nice thing is that you can turn the grid lines On and Off at will. You don't have to buy an expensive viewfinder replacement screen for those times you need grid lines.

Viewfinder Warning Display

Custom setting d3 (D300S and D300)

(User's Manual – D300S page 275; D300 page 282)

Viewfinder warning display puts a low-battery warning in the Viewfinder, so we'll know when our camera's battery is getting low on power.

Figure 4-33 shows the location for the Viewfinder warning display in the Viewfinder (see red arrow). It only appears when the battery gets down to one notch left.

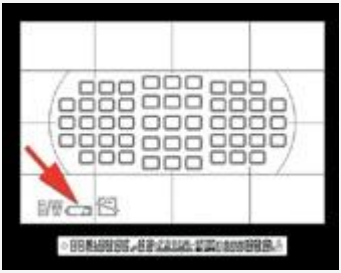


Figure 4-33. Low battery warning

However, if the low-battery Viewfinder warning bugs you, just turn it off! Here are the screens and steps used to turn Viewfinder warning display on or off (see Figure 4-34):

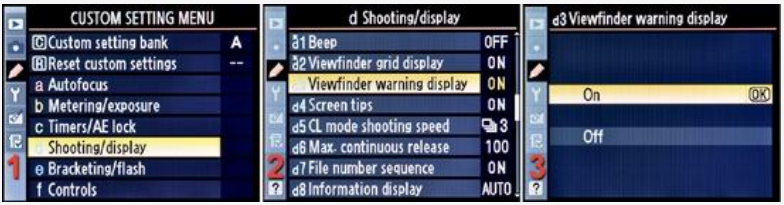


Figure 4-34. Viewfinder warning display configuration

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-34, image 1).
2. Highlight Viewfinder warning display and scroll to the right (see Figure 4-34, image 2).
3. Choose one of the two choices on the list. In Figure 4-34, image 3, On has been selected.
4. Press the OK button to lock in the setting.

The normal battery power-level display always shows on the Control panel, but it only shows in the Viewfinder when you have Viewfinder warning display turned On. You won't see the low-battery warning appear in the Viewfinder until your camera's battery is actually low.

My Recommendation: I think it's a great idea to have the Viewfinder warn me when my camera's battery is getting low. I'd hate to be in the middle of an important shoot only to have the camera die from lack of battery power. Don't you agree?

Screen Tips

Custom setting d4 (D300S Only)

(User's Manual – D300S page 276)

Screen tips allows you to enable small, helpful tips on the second screen of the camera's Information display. This is only available on the D300S.

This display is accessed by pressing the camera's Info button *twice*. Pressing the Info button once only brings up a summary display—you can't edit anything. Pressing it twice shows a similar screen that allows you to change several settings. It's a shortcut screen with settings that are accessed frequently, such as changing the Shooting menu bank or Custom setting bank.

Figure 4-35, image 1, shows the screen that appears when you press the Info button once. Figure 4-35, image 2, shows the screen that appears when you press Info button twice. The first screen is called the Information display screen, and I'll

call the second screen the Information display edit screen to prevent confusion between the two.

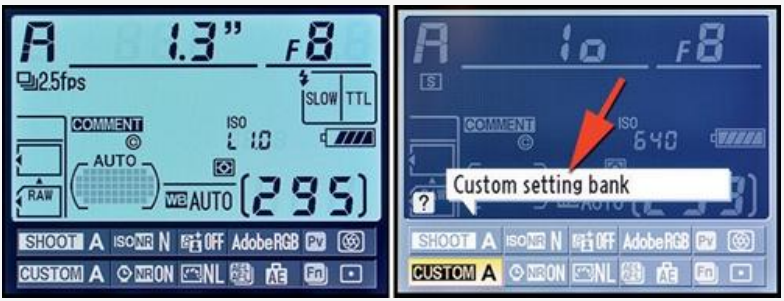


Figure 4-35. Information screens with Screen tips enabled

You may download additional information on the two screens from this book's downloadable resources on the Web at **http://rockynook.com/NikonD300S**. Look for material called **Information Display**. It takes a closer look at these two displays.

The D300 has a similar screen called the Shooting info display, but it has no extra functionality for editing the settings. It only displays the current shooting information and is similar to the D300S Information display.

Since I have Screen tips enabled on my D300S camera, you can see the small tip for changing the Custom setting bank (see red arrow in Figure 4-35):

If you press the OK button when you have one of the settings highlighted on the Information display edit screen—as Figure 4-35, image 2 shows—the camera will switch to a normal text menu and allow you to modify the setting.

Here are the screens and steps to configure Screen tips (see Figure 4-36):

Figure 4-36. Screen tips

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-36, image 1).
2. Highlight Screen tips and scroll to the right (see Figure 4-36, image 2).
3. Choose one of the two choices on the list. In Figure 4-36, image 3, On has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: This is a helpful function that gives you "tool tips" for using the Information display edit screen. If you have a D300S, I would leave this set to the factory default of On. These little tips don't get in the way of anything and may be helpful to remind you which setting you're looking at on the Information display edit screen.

CL Mode Shooting Speed

Custom setting d5 (D300S) and d4 (D300)

(User's Manual – D300S page 276; D300 page 282)

CL mode shooting speed controls how many frames per second (fps) the camera can take. At this point, the D300S and D300 deviate in their Custom Setting numbers for the first time. The D300S uses Custom setting d5 for CL mode shooting speed, while the D300 uses Custom setting d4.

The CL mode is for those of us who would like to use a conservative frames-per-second rate. With the proper power, the camera can record 6 or 7 frames per second. However, unless you are shooting 200 MPH racecars, and have large memory cards, you may not want 35 frames of the same subject a few milliseconds apart.

Here are the screens and steps used to configure CL mode shooting speed (see Figure 4-37):

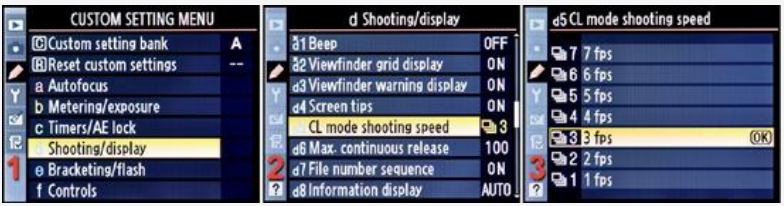


Figure 4-37. CL mode shooting speed

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-37, image 1).
2. Highlight CL mode shooting speed and scroll to the right (see Figure 4-37, image 2).
3. Choose one of the seven choices on the list. In Figure 4-37, image 3, 3 fps has been selected.
4. Press the OK button to lock in the setting.

As the last screen in Figure 4-37 shows, you can adjust CL mode shooting speed so that your camera shoots at any frame rate between 1 and 7 frames per second. The default is 3 frames per second. Remember, you always have CH mode for when you want to blast off images like there's no end to your memory card(s) or when you want to impress bystanders with that extra cool Nikon shutter clicking sound.

My Recommendation: Use your favorite CL mode shooting speed, and grab a few, or many, frames in each press-and-hold of the Shutter-release button. I've always left mine set at the default of 3 fps since that is reasonably fast yet not wasteful of card space. If you'd like, you can slow it all the way down to 1 fps and only take one picture each second that you hold the Shutter-release button down. You'll need to play around with this setting and decide for yourself what speed you like. Again, remember that you have both low (CL) and high (CH) speeds for the camera's shooting rate. This function is for the low speed setting (CL) found on the Release mode dial.

Max. Continuous Release

Custom setting d6 (D300S) and d5 (D300)

(User's Manual – D300S page 276; D300 page 282)

Max. continuous release sets the maximum number of images you can shoot in a single burst. It sounds like you can just start blasting away with your camera—shooting in a single burst until you have reached the number specified in Figure 4-38, image 3, which is up to 100 images.

While it is possible that you could reach 100 images in a single burst, it is improbable. Your camera is limited by the size of its buffer and the type of image you are shooting.

There's a list in your camera user's manual that specifies how large your camera's buffer is for each image type. In case you're interested in the raw buffer capacity data, the D300S list is on manual page 394, while the D300 list is on manual page 402.

Here's a summary of what the two user's manuals report:

- **NEF (RAW) files –** The D300S holds 18 to 45 images, and the D300 holds 18 to 27 images—according to whether you are shooting in 12- or 14-bit color depth and whether you are using compression or not.
- **TIFF files –** The D300S holds 16 to 27 images, and the D300 holds 16 to 29 images—according to whether you are shooting L, M, or S size.
- **JPEG files –** The D300S holds 44 to 100 images, and the D300 holds 43 to 100 images—according to whether you are shooting in L, M, or S size; in Fine, Normal, or Basic; and finally, whether you have selected Optimal quality or Size priority compression.

So, unless you are shooting the smaller JPEG basic files, you'll fill up your camera buffer long before you reach the maximum of 100 shots specified by Max. continuous release.

Here are the screens and steps used to configure Max. continuous release (see Figure 4-38):

Figure 4-38. Max. continuous release

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-38, image 1).
2. Highlight Max. continuous release and scroll to the right (see Figure 4-38, image 2).
3. Use the Multi Selector to scroll up or down and set the number of images you want in each burst. In Figure 4-38, image 3, 100 has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: If you have a need to limit your camera to a maximum number of images in each shooting burst, simply change this number from its default of 100 images to whatever you feel works best for you. Personally, I want the buffer to hold as many images as it possibly can when I am blasting away in high-speed shooting modes, so I leave Max. continuous release set to 100.

However, you may want to artificially limit the camera to a maximum burst of 10 or 20 images, just so the buffer will not fill up and slow the camera way down. This also lets you maintain some control over your enthusiastic high-speed shooting. Do you really want dozens and dozens (and dozens) of pictures of those flying seagulls?

File Number Sequence

Custom setting d7 (D300S) and d6 (D300)

(User's Manual – D300S page 277; D300 page 283)

File number sequence allows your camera to keep count of the image file numbers for each picture you take, in a running sequence from 0001 to 9999. After 9999 pictures, it rolls back over to 0001. Or, you can cause it to reset the image number to 0001 when you format or insert a new memory card.

Here are the settings and an explanation of how they work:

- ***On*** – Image file numbers start at 0001 and *continue* running in a series until you exceed 9999, at which time the image numbers roll over to 0001 again. The File number sequence continues even if a new folder is created, a new memory card is inserted, or the current memory card is formatted. If the file number exceeds 9999 during a shoot, the camera will create a brand-new folder on the same memory card and start writing the new images in numbered order from 0001 into the new folder. Similarly, if you accumulate 999 images in the current folder, the next image capture will result in the camera creating a new folder, but the file numbering will *not* be reset to 0001 unless that 999th image had a file number of 9999. In other words, no matter what you do with your memory cards, or how many folders you or the camera create, the File number sequence will continue incrementing until 9999 images have been taken. Only then will the File number sequence reset to 0001.

- ***Off*** – Whenever you format or insert a new a memory card, the number sequence starts over at 0001. If you exceed 999 images in a single folder, the camera creates a new folder and starts counting images at 0001 again.
- ***Reset*** – This works in a similar way to the On setting. However, it is not a true running total to 9999 because the image number is dependent on the folder in use. The camera simply takes the last number it finds in the current folder and adds 1 to it, up to 999. If you switch to an empty folder, the numbering starts over at 0001. Since a folder cannot hold over 999 pictures, you will not exceed 999 as a running sequence of images in any one folder. Each folder has its own number series and causes a File number sequence Reset.

Here are the steps and screens used to configure File number sequence (Figure 4-39):

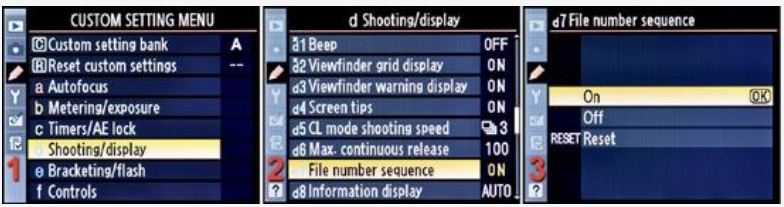


Figure 4-39. File number sequence

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-39, image 1).
2. Highlight File number sequence and scroll to the right (see Figure 4-39, image 2).

3. Choose one of the three choices on the list. In Figure 4-39, image 3, On has been selected.

4. Press the OK button to lock in the setting.

My Recommendation: I heartily recommend that you set File number sequence to On. After much experience with Nikon DSLR cameras, and many years of storing thousands of files, I've found that the fewer number of files with similar image numbers, the better. Why take a chance on accidentally overwriting the last shooting session when copying files on your computer just because they have the same image numbers?

Plus, I like to know how many pictures I've taken with each camera. Since I use the Shooting Menu > File naming function to add three letters reflecting the current number of times my camera has rolled over 9999 images (e.g., _1DY9999.NEF, _2DY9999. NEF, or _3DY9999.NEF), I'm better able to determine how many images I've taken with the camera. I just have to be careful to change the 1DY to 2DY when the image File number sequence rolls over from 9999 to 0001.

> How Many Images?
>
> The User's Manual describes an unusual situation that few of us will ever see. However, just in case you leave your frame rate set to CH and never let up on the Shutter-release button, you might want to read this paragraph carefully.
>
> Each time you exceed 999 images in a folder, the camera will create a new folder. If your current folder is number 999 and either has 999 images or an image is numbered

9999, your camera will stop responding to Shutter-release button presses. I guess it figures that you've taken quite enough images in this session! The only way you'll get your camera to take more pictures is to set File number sequence to Reset and format or insert a new memory card.

Basically, you should never number a folder up as high as 999 and then shoot over 999 images or let the camera's running total of images exceed 9999 in a folder numbered 999. Next time you manually create a folder or set up Active folder numbering (Shooting Menu > Active folder setting), please keep your folder numbers lower than 999 if you are going to shoot more than 999 images that day or if your number sequence in that folder is about to exceed 9999.

Read this paragraph over 999 times, and you'll understand just what I'm talking about.

Information Display (Shooting Info Display)

Custom setting d8 (D300S) and d7 (D300)

(User's Manual – D300S page 278; D300 page 284)

Information display in the D300S, or Shooting info display in the D300, is a function that allows your camera to automatically sense how much ambient light is in the area where you are shooting. If the ambient light is bright, the color of the physical Information display or Shooting info

display will be bright also, so that it can overcome the ambient light.

The D300S and D300 vary the name of this setting significantly. The D300S calls this function Information display to more closely match newer sibling cameras, while the older D300 simply calls it Shooting info display. It does the same thing, no matter what you call it.

The D300S adds a second screen I call the Information display edit screen, which we discussed a few pages back. That second screen is not available in the D300. The Information display edit screen's color is not affected by the Information display setting on the D300S.

The D300S also has an extra button when compared to the D300. On the D300, you have the Protect/Help/Info button. On the D300S, Nikon added a completely separate Info button to make things a little easier, in addition to adding more functionality to the Information display. To open the Information display on the D300S, you press the stand-alone Info button. To open the Shooting info display on the D300, you press the Protect/Help/Info button. Figure 4-40, images 1 and 2, compare both cameras' "info" buttons. Image 1 shows the Info button for the D300S. It's located on the back of the camera just below the AF-area mode selector and LV button (red arrow). Image 2 shows the Protect/Help/Info button for the D300, just below the MENU button (red arrow).

Figure 4-40. Comparing the D300S and D300 Info buttons

Both of these buttons bring up a similar screen that shows current shooting information. As mentioned in the beginning of this section, the extremely cool thing about this Information (Shooting info) display is that it can adjust its color and brightness according to the ambient light the camera senses through its lens.

Try this: With your lens cap off, camera turned on, and nothing showing on the rear screen, press the Info button (D300S) or Protect/Help/Info button (D300). If there's even dim ambient light where you are, you'll see a light blue info screen with black letters. Now, go into a dark area, put your lens cap on, or cover the eyepiece with your hand. You'll see that anytime there are dark ambient light conditions, the camera changes the Information display (Shooting info display) screen to light gray characters on a black background. This assures that you aren't blinded when you need shooting information while in a dark area.

This may not impress you much, but I'm easily entertained! As shown in Figure 4-41, there are two available selections for Information display (D300S) or Shooting info display (D300):

- ***Auto*** – The D300(S) decides through its capless lens or uncovered eyepiece how much ambient light there is and changes the color and contrast of the Information display (Shooting info display) screen accordingly.
- ***Manual*** – This manual setting allows you to select the light or dark versions of the Information display (Shooting info display) screen manually. The two screens are B-dark on light (normal bright screen) and W-light on dark (for darker areas).

Here are the screens and steps used to configure the Information display (Shooting info display) screen (see Figure 4-41):

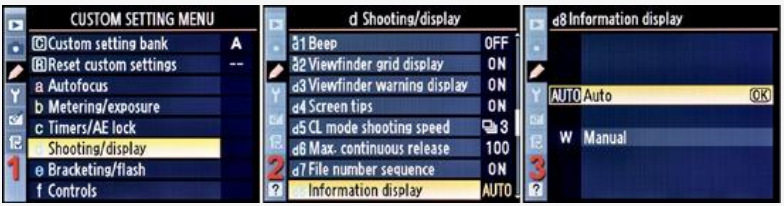


Figure 4-41. Information or Shooting info display

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-41, image 1).
2. Highlight Information display (D300S) or Shooting info display (D300) and scroll to the right (see Figure 4-41, image 2). I've shown the D300S screens. The only difference is in the text of the highlighted name.
3. Choose one of the two choices on the list. In Figure 4-41, image 3, Auto has been selected.
4. Press the OK button to lock in the setting.

Figure 4-42 shows the difference between the light and dark screens, which you can select using one of the two Manual settings or which Auto will select automatically. The screen on the left is the dark-on-light (B-Manual) screen, while the one on the right is the light-on-dark (W-Manual) screen.

Figure 4-42. Light (B) and Dark (W) info display screens

If you want to impress your friends and make your enemies envious, just show them how cool your camera is when it's smart enough to adjust its screen to current light conditions. I warned you that I'm easily entertained, didn't I?

My Recommendation: I leave my camera set to Auto because it seems to work very well at automatically selecting the proper screen for current light conditions. If you prefer the lighter screen, you can select B-Manual for the normal bright blue, light-on-dark screen, and it will stay that way all the time. Or you could select W-Manual for the darker, less-colorful screen.

LCD Illumination

Custom setting d9 (D300S) and d8 (D300)

(User's Manual – D300S page 278; D300 page 285)

LCD illumination is a simple setting that allows you to set how the illumination of the Control panel LCD backlight works. When it's on, the Control panel lights up in green. Here are the two choices and how they work:

- ***Off*** – If you leave LCD illumination set to Off, the Control panel will not turn on its backlight unless you tell it to with the "backlight on" setting on the ring surrounding the Shutter-release button. If you use your shutter finger to pull the Power switch all the way to the right, the Control panel will light up (see Figure 4-43).
- ***On*** – This setting makes the Control panel illumination come on anytime the exposure meter is active. If you are shooting a lot in the dark and need to refer to the Control panel often, then switch this setting to On.

Figure 4-43. LCD illumination

Here are the screens and steps used to configure LCD illumination (see Figure 4-44):

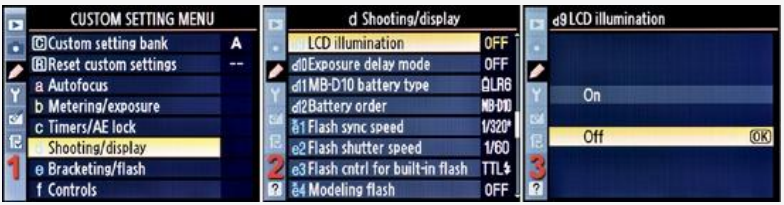


Figure 4-44. Shooting/display screens

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-44, image 1).
2. Highlight LCD illumination and scroll to the right (see Figure 4-44, image 2).
3. Choose one of the two choices on the list. In Figure 4-44, image 3, Off has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: This setting will affect battery life since backlights pull a lot of power, so I wouldn't suggest using the On setting unless you really need it. You always have the Power switch (On/Off/Backlight)—surrounding the Shutter-release button—to manually turn the light on when needed.

Exposure Delay Mode

Custom setting d10 (D300S) and d9 (D300)

(User's Manual – D300S page 278; D300 page 285)

Exposure delay mode introduces a delay of about one second after the Shutter-release button is pressed—and the reflex mirror raised—before the shutter is actually released. Hopefully, during the one-second delay, camera vibrations will die down and the image will be sharper.

There are two settings available in Exposure delay mode (see Figure 4-45):

- ***On*** – The camera first raises the reflex (viewing) mirror and then waits about one second before firing the shutter. This allows the vibrations from the mirror movement to dissipate before the shutter fires. Of course, this won't be useful at all for shooting anything moving, or for any type of action shots. But for slow shooters of static scenes, this is great and keeps you from having to use Mirror-Up (MUP), which requires two Shutter-release button presses to take a picture. It has the same effect as MUP, but only requires one Shutter-release button press and a one-second delay.
- ***Off*** – The shutter has no delay when this setting is turned off.

Here are the screens and steps used to configure Exposure delay mode (Figure 4-45):

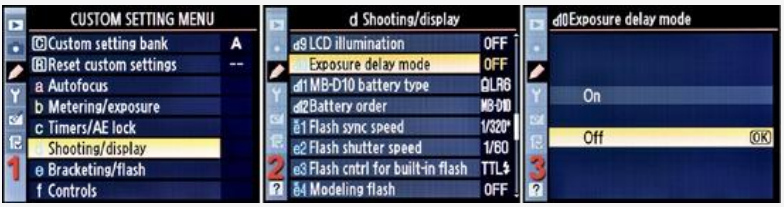


Figure 4-45. Exposure delay mode

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-45, image 1).
2. Highlight Exposure delay mode and scroll to the right (see Figure 4-45, image 2).
3. Choose one of the two choices on the list. In Figure 4-45, image 3, Off has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: Exposure delay mode is very important to me. As a nature shooter, I use it frequently for single shots. When I'm shooting handheld—or on a tripod—and want a really sharp image, I use this mode to prevent the camera's internal reflex mirror movement from vibrating my camera and blurring my pictures. If you handhold your camera, shoot mostly static subjects, and want sharper pictures—this will help. On a tripod, this is a time saver compared to Mirror-Up (MUP) mode, which requires two Shutter-release button presses or a 30-second delay.

MB-D10 Battery Type

Custom setting d11 (D300S) and d10 (D300)

(User's Manual – D300S page 279; D300 page 285)

MB-D10 battery type applies only when you choose to use AA-sized batteries of various types in your optional MB-D10 battery pack. It does not apply when you are using normal Nikon EN-EL3e, EN-EL4, or EN-EL4a lithium-ion batteries, because they're intelligent and communicate with the camera.

If you have an MB-D10 and plan on using cheap AA batteries, then you'll need to tell the camera what type of AA batteries you're using for this session. It certainly is *not* a good idea to mix AA battery types.

These are the battery types the camera will accept:

- LR6 (AA alkaline)
- HR6 (AA Ni-MH)
- FR6 (AA lithium)
- ZR6(AA Ni-Mn)

Here are the screens and steps for configuring the MB-D10 battery type (Figure 4-46):

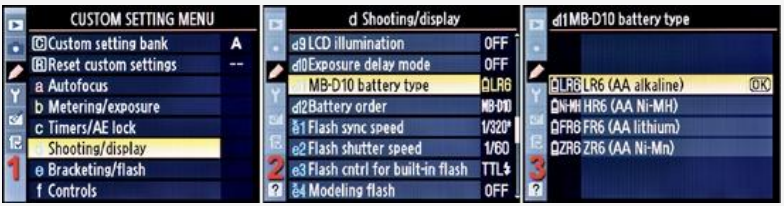


Figure 4-46. MB-D10 battery type

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-46, image 1).
2. Highlight MB-D10 battery type and scroll to the right (see Figure 4-46, image 2).
3. Choose one of the four choices on the list. In Figure 4-46, image 3, LR6 (AA alkaline) has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: Nikon allows but does not recommend using certain AA batteries, such as Alkaline (LR6) and Ni-Mn (ZR6 – nickel-manganese). Its primary objection to these two types is that they do not work well at lower temperatures. In
fact, once you go below 68 degrees F (20 degrees C), an Alkaline battery starts losing its ability to deliver power and will die rather quickly. You may not get as many shots out of a set of AA batteries, so your cost of shooting may rise.

However, AA batteries are readily available and relatively low cost, so some people like to use them, especially in an emergency. If you do choose to use AA batteries, why not stick with Lithium types (FR6) since that is the same type of cell used in the normal Nikon EN-EL batteries and is not affected as much by a low ambient temperature. You can also use the Ni-MH (HR6 – nickel-metal hydride) batteries safely since they are not as temperature sensitive and provide consistent power.

Battery Order

Custom setting d12 (D300S) and d11 (D300)

(User's Manual – D300S page 280; D300 page 287)

Battery order lets you choose the order in which you want the available batteries to be used—camera's battery first or those in the MB-D10 battery pack first.

Here are the screens and steps used to configure the Battery order (Figure 4-47):

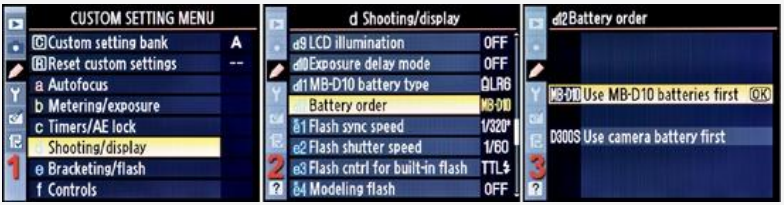


Figure 4-47. Battery order

1. Select d Shooting/display from the Custom Setting Menu and scroll to the right (see Figure 4-47, image 1).
2. Highlight Battery order and scroll to the right (see Figure 4-47, image 2).
3. Choose one of the two choices on the list. In Figure 4-47, image 3, Use MB-D10 batteries first has been selected in my example.
4. Press the OK button to lock in the setting.

My Recommendation: Which battery do you want to draw down first? Personally, I like to use the MB-D10 batteries first and have my camera's internal battery available as a backup. That way, if I remove the MB-D 10, my camera won't suddenly go dead due to a depleted battery. Nikon thinks the same way, evidently, since the camera defaults to Use MB-D10 batteries first.

Section Five – (e) Bracketing/ Flash: Custom Settings e1 to e7

Within the Bracketing/flash menu, you'll find 7 settings in the D300S and D300. There are no variances between the two cameras' Custom Setting numbers in this section:

▪ Flash sync speed	(e1 in both D300/D300S)
▪ Flash shutter speed	(e2 in both D300/D300S)
▪ Flash cntrl for built-in flash	(e3 in both D300/D300S)
▪ Modeling flash	(e4 in both D300/D300S)
▪ Auto bracketing set	(e5 in both D300/D300S)
▪ Auto bracketing (Mode M)	(e6 in both D300/D300S)
▪ Bracketing order	(e7 in both D300/D300S)

Flash Sync Speed

Custom setting e1 (D300S and D300)

(User's Manual – D300S page 281; D300 page 288)

Flash sync speed lets you select a basic synchronization speed from 1/60s to 1/250S. The D300(S) has a more flexible Flash sync speed than many cameras.

Or, if you prefer, you can use the two Auto FP modes of your camera—1/250 s (Auto FP) or 1/320 s (Auto FP). These Auto FP modes are available only with certain external Speedlights and *not* with the built-in pop-up Speedlight.

At the time of writing this book, the four Nikon Speedlights that can be used with the D300(S) in Auto FP high-speed sync mode are as follows:

- SB-900
- SB-800
- SB-600
- SB-R200

Auto FP high-speed sync enables the use of fill-flash even in bright daylight with wide aperture settings. It allows you to set your camera to the highest shutter speed available, up to 1/8000s, and still use the external flash unit to fill in shadows. Here are your choices (see Figure 4-48):

- 1/320 s (Auto FP)
- 1/250 s (Auto FP)
- 1/250 s
- 1/200 s
- 1/160 s
- 1/125 s

- 1/100 s
- 1/80 s
- 1/60 s

Here are the screens and steps used to adjust your camera's Flash sync speed (Figure 4-48):

Figure 4-48. Flash sync speed

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-48, image 1).
2. Highlight Flash sync speed and scroll to the right (see Figure 4-48, image 2).
3. Choose one of the nine choices on the list—1/60 s to 1/320 s (Auto FP). In Figure 4-48, image 3, 1/320 s (Auto FP) has been selected.
4. Press the OK button to lock in the setting.

When you're using Auto FP mode, the output of your flash is reduced, but it doesn't cut off the frame for exposures using a shutter speed higher than the normal flash sync speed (x sync). Why? Let's review.

Auto FP High-Speed Sync Review

In a normal flash situation, with shutter speeds of 1/250 of a second and slower, the entire shutter is fully open and the flash can fire a single burst of light to expose the subject. It works like this: There are two shutter curtains in your camera. The first shutter curtain opens, exposing the sensor to your subject, the flash fires providing correct exposure, and then the second shutter curtain closes. For a very brief period, the entire sensor is uncovered. The flash fires during the time when the sensor is fully uncovered.

However, when your camera's shutter speed goes above 1/250 of a second, the shutter curtains are never fully open for the flash to expose the entire subject in one burst of light. The reason is, at higher shutter speeds, the first shutter curtain starts opening and the second shutter curtain quickly starts following it. In effect, a slit of light is scanning across the surface of your sensor, exposing the subject. If the flash fired normally, the width of that slit between the shutter curtains would get a flash of light, but the rest of the sensor would be blocked by the curtains. So, you would have a band of correctly exposed image, and everything else would be underexposed.

What happens to your external Nikon Speedlight to allow it to follow that slit of light moving across the sensor? It changes into a pulsing strobe unit instead of a normal flash unit. Have you ever danced under a strobe light? A strobe works by firing a series of light pulses. Similarly, when your camera's shutter speed is so high that the Speedlight cannot fire a single burst of light for correct exposure, it can use its Auto FP high-speed sync mode and fire a series of light bursts over

and over as the slit between the shutter curtains travels in front of the image sensor. The Speedlight can fire thousands of bursts per second. To a photographer or subject it still looks like one big flash of light, even though, in reality, it is hundreds or thousands of bursts of light, one right after the other.

When you are in Auto FP mode, you'll see something like this on your Speedlight's LCD monitor: TTL FP or TTL BL FP.

The FP designation tells you that the camera and Speedlight are ready for you to use any shutter speed you'd like and still get a good exposure. Even with wide open apertures!

You can safely leave your camera set to 1/320 s Auto FP or 1/250 s Auto FP *all the time* since the high-speed sync mode does not kick in until you raise the shutter speed above the maximum setting of 1/250 s. Below that shutter speed, the flash works in normal mode and does not waste any power by pulsing the output.

This pulsing of light reduces the maximum output of your flash significantly but allows you to use any shutter speed you'd like while still firing your external Speedlight. The higher the shutter speed, the lower the flash output. In effect, your camera is depending on you to have enough ambient light to offset the loss in power. I've found that even my powerful SB-900 Speedlight can only provide enough power to light a subject out to about 8 feet (2.4 m) when using a 1/8000 s shutter speed. With shutter speeds that high, there needs to be enough ambient light to help the flash light the subject, unless you are very close to the subject.

However, now you can use wide apertures to isolate your subject in direct sunlight—which requires high shutter speeds. The flash will adjust and provide great fill light, if you're using Auto FP high-speed sync mode.

One thing to note: If your flash fires at full power in normal modes, it will blink the flash indicator in the Viewfinder to let you know that all available flash power has been dumped, and you need to check to see if the image is underexposed. When the camera is firing in Auto FP high-speed sync mode, that doesn't happen. You'll get no warning in the Viewfinder if the image does not have enough light. Check the camera's histogram often when using Auto FP.

Special Shutter Speed Setting X + Flash Sync Speed

When using exposure modes Manual (M) or Shutter-priority auto (S)—if you crank the shutter speed all the way down to 30 seconds, then to bulb—there is still one more setting below bulb, named X + Flash sync speed. This special setting allows you to set the camera to a known shutter speed and shoot away. You will see X 250 if Custom Setting e1 > Flash sync speed is set to 1/250 s. Whatever Flash sync speed you select will show up after the X. If you selected a Flash sync speed of 1/125 s, then X 125 will show
up as the next setting below bulb. Selecting a Flash sync speed of 1/60 s means that X 60 will show up below bulb, etc.

The shutter speed will not vary from your chosen setting. The camera will adjust the aperture and flash when in Shutter-priority auto (S) mode, or you can adjust the aperture while the flash controls exposure in Manual (M) mode.

This special X-Sync mode is not available in Aperture-priority auto (A) or Programmed auto (P) modes since the camera controls the shutter speed in those two settings. Primarily, you'll use this setting when you are shooting in Manual or in Shutter-priority auto and want to use a known X-Sync speed.

My Recommendation: I leave my camera set to 1/320 s (Auto FP) as shown in Figure 4-48, all the time. The camera works just like it normally would until one of my settings takes it above 1/250s shutter speed, at which time it starts pulsing the light to match the shutter curtain travel. Once again, you won't be able to detect this high-frequency strobe effect since it happens so fast it seems like a single burst of light.

Just remember that the flash loses significant power (or reach) at higher shutter speeds since it is forced to work so hard. Be sure you experiment with this to get the best results. You can use a big aperture like f/1.8 to have very shallow depth of field in direct bright sunlight since you can use very high shutter speeds. This will allow you to make images that many others simply cannot create. Learn to balance the flash and ambient light in Auto FP high-speed sync mode. All this technical talk will make sense when you see the results. Pretty cool stuff!

> Which Flash Units for Auto FP High-Speed Sync Mode?
>
> If you are using the camera's built-in pop-up Speedlight, or the small Nikon SB-400, your camera's maximum flash shutter speed is limited to 1/320 s. If you use the external Speedlights SB-900, SB-800, SB-600, or SB-R200, you

can use any shutter speed and the flash will adjust (pulse) to match lighting needs. With the larger Speedlights, you'll need to learn how to balance ambient light with light from the flash when using shutter speeds higher than 1/250 s. Just remember that your flash unit's range will be seriously reduced at higher shutter speeds.

Flash Shutter Speed

Custom setting e2 (D300S and D300)

(User's Manual – D300S page 282; D300 page 291)

Flash shutter speed controls the minimum shutter speed your camera can use in various flash modes. You can select between 30 seconds (30 s) and 1/60 s.

Let's consider each of the modes and the minimum shutter speed for it:

- **Front-curtain sync**, **Rear-curtain sync, or Red-eye reduction** – In Programmed auto (P) mode or Aperture priority auto (A) mode, the slowest shutter speed can be selected from the range of 1/60 s to 30 seconds (see Figure 4-49). Shutter priority (S) mode and Manual (M) mode cause the camera to ignore Flash shutter speed, and the slowest shutter speed is 30 seconds (30 s).
- **Slow sync, Red-eye reduction with slow sync, or Slow rear-curtain sync** – These three modes ignore Flash shutter speed, and the slowest shutter speed is 30 seconds.

The user's manual is a bit confusing on this subject, but the mode and minimum shutter speed information in the previous list is evident after study and testing. Therefore, Custom setting e2 is only partially used by the flash modes, because the default is preset to 30 seconds in Shutter priority auto and Manual modes.

Here are the screens and steps to set the Flash shutter speed minimum (see Figure 4-49):

Figure 4-49. Flash shutter speed

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-49, image 1).
2. Highlight Flash shutter speed and scroll to the right (see Figure 4-49, image 2).
3. Choose one of the choices on the list—1/60 s to 30 s. In Figure 4-49, image 3, 1/60 s has been selected. Remember that slower shutter speeds can cause subject ghosting when using flash in high ambient light conditions.
4. Press the OK button to lock in the setting.

My Recommendation: I normally use 1/60 s. Shutter speeds lower than 1/60s can cause ghosting if the ambient light is too high. The subject can move after the flash fires, but with the

shutter still open and with enough ambient light to record a blurred ghost effect. You'll have a well-exposed picture of the subject with a ghost of him also showing in the image. Only use slower shutter speeds when you are sure that you'll be in dark conditions and the flash will provide the only lighting—unless you're shooting special effects, like a blurred aftereffect following your subject to imply movement.

Flash Cntrl for Built-in Flash

Custom setting e3 (D300S and D300)

(User's Manual – D300S page 283; D300 page 291)

Flash cntrl for built-in flash provides four distinct ways to control the pop-up Speedlight's flash output. This Custom setting does not apply to flash units you attach via the Accessory shoe (hotshoe) on top of the camera. It is only for the pop-up flash.

Here are the screens and steps used to configure Flash cntrl for built-in flash (Figure 4-50):

Figure 4-50. Flash cntrl for built-in flash – TTL mode

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-50, image 1).

2. Highlight Flash cntrl for built-in flash and scroll to the right (see Figure 4-50, image 2).
3. Choose one of the four choices on the list. In Figure 4-50, image 3, TTL has been selected. The other choices will be detailed in Figure 4-51-Figure 4-53.
4. Press the OK button to lock in the setting.

Let's consider each of these modes.

TTL (see Figure 4-50) – Also known as iTTL, this mode is the standard way to use the camera for flash pictures. TTL stands for Through The Lens, and it allows very accurate and balanced flash output using a pre-flash method to determine correct exposure before the main flash burst fires. This is a completely automatic mode and will adjust to distances, along with the various shutter speeds and apertures your camera is using.

Figure 4-51. Flash cntrl for built-in flash – Manual mode

M – Manual (see Figure 4-51) – This mode allows you to manually control the output of your flash. The range of settings can go from Full power to 1/128 and a range of settings in between.

Figure 4-52. Flash cntrl for built-in flash – Repeating flash mode

RPT – Repeating flash (see Figure 4-52) – This setting turns your flash into a strobe unit that you can see pulsing (unlike Auto FP high-speed sync mode), allowing you to get creative with stroboscopic multiple flashes. Using the screen shown in Figure 4-52, image 3, you'll use the Multi Selector to scroll up and down to set the values or scroll left and right to move between Output, Times, and Frequency. Press the OK button when you have it configured. There are three settings as shown in Figure 4-52, image 3:

- Output – You can vary the power of the flash from 1/4 to 1/128 of full power. The more power the flash uses, the fewer times it can fire. Here is a table of how many times the built-in pop-up flash can fire using the various Output levels:
    - 1/4: 2 times
    - 1/8: 2–5 times
    - 1/16: 2–10 times
    - 1/32: 2–10 or 15 times
    - 1/64: 2–10, 15, 20, or 25 times

- 1/128: 2–10, 15, 20, 25, 30, or 35 times

- Times – This setting controls the number of times the flash will strobe per second, between 2 and 10 in one-step increments, and then from 10 to 50 (at 1/128) by five-step increments. Refer to the table above to set the number of times the flash can fire. Raising the power output (going toward 1/4) will decrease the number of times the flash can fire while lowering the power (going toward 1/128) will increase the number of times the flash can fire. As you change the Output amount you'll see the Times maximum change.

- Frequency – This sets the flash to fire a series of pulses for each of the Times it fires, from 1 pulse to 50 pulses.

How Does Repeating Flash Work, Technically?

If you have Output set to 1/128, Times set to 5, and Frequency set to 50, that means the camera will fire its built-in pop-up Speedlight at 1/128 of full power, five times, with each flash burst divided up into 50 shutter speed pulses. Therefore, the flash will pulse a total of 250 times at 1/128 power for a 1 s exposure, or four times for a 1/60 s exposure.

Figure 4-53. Flash cntrl for built-in flash – Commander mode

C – Commander Mode (see Figure 4-53) – This mode allows your camera to become a commander or controller of up to two banks of an unlimited number of external CLS-compatible Speedlight flash units, with four available channels (1-4).

In Figure 4-53, image 3, you'll see Built-in flash, Group A and B, and a Channel setting. Following Built-in flash and Group A and B, you'll see Mode and Comp. Use the Multi Selector to move around and modify settings on this screen. Here's what they each mean.

Built-in flash – This lets you set the pop-up flash to one of three settings. The settings do not affect any of the flash units the Commander mode is controlling in Group A or B:

- TTL – Otherwise known as i-TTL mode, this is a completely automatic Mode that does monitor pre-flashes to determine correct exposure for the pop-up flash. You can set compensation (Comp.) between +3.0 and -3.0 EV in 1/3 EV steps.
- M – This allows you to choose a manual flash level between 1/1 (full power) to 1/128 (1/128 of full power).
- -- – I call this the double-dash mode. This disables the pop-up flash from adding light to the image. The primary light burst from the pop-up flash will not fire. However, the pop-up flash still must fire the monitor pre-flashes to determine a correct exposure and to communicate with

any flash units out there in Group A or Group B that it is "commanding".

Group A or B – These groups represent groups of an unlimited number of remote mode (slaved) Speedlights that your camera can control and fire under the Nikon Creative Lighting System (CLS). Each group has four settings that apply to each flash unit in that group (TTL, AA, M, - -). Following is a description of each setting:

- TTL – This works like Built-in flash except that it causes all flash units being controlled in each Group to use TTL (i-TTL) for that group. You can also set compensation (Comp.) between +3.0 and -3.0 EV in 1/3 EV steps. Comp. will affect all flash units in that group.
- AA – This stands for Auto aperture and is only available when your D300(S) is contolling an SB-900 or SB-800 Speedlight flash unit in slave mode on a bank. This is an older technology that does not use the newer i-TTL exposure technology. It is included for those who are used to using the older style of exposure. You can safely ignore this mode and use TTL instead, and you'll get better exposures. If you really want to use AA mode, that's fine. It works like TTL mode, but with less accurate exposures. You can set compensation (Comp.) between +3.0 and -3.0 EV in 1/3 EV steps. Comp. will affect all flash units in that group.
- M – This allows you to choose a manual flash level between 1/1 (full power) to 1/128 (1/128 of full power) for each of the flash units being controlled by that particular group setting. If you like to shoot manually for

ultimate control, the camera gives you a way to control multiple groups of flash units in a manual way.

- – – The flash units in the group do not fire. "Double-dash" mode disables an entire group so that you can concentrate on configuring the other group. Then you can turn the disabled group back on and configure it too. Or, you can just use one group of slaved Speedlights (A or B) and disable the other.

Channel – This one channel controls all slaved flash units. You must match the Channel number for the camera and each flash unit. This is the channel on which communications flow to all grouped, remote flashes. You have a choice of four channel numbers, 1-4. This allows you to use your flash units near another photographer who is also controlling groups, without firing the other person's flash units accidentally. You just each choose a different channel.

An upcoming chapter of this book titled **Chapter 12** is devoted to using Nikon's Creative Lighting System (CLS) and covers each of the Commander modes and flash unit types in more detail than the summary found here.

Commander Mode Notes

When using multiple flash units under the control of your camera in Commander mode, it is important that you understand the following.

First, the camera communicates with the remote slaved flash groups (A and B) during the monitor pre-flash cycle, so the pop-up flash must be raised in Commander mode in order to communicate with the remote flash units.

Second, each remote flash unit has a little round photocell sensor on its side that picks up the monitor pre-flashes from your camera's pop-up flash. Make sure those little sensors are not blocked or exposed to direct, very bright light while in use, or they may not be able to see the monitor pre-flashes from your camera.

Third, if you want to prevent the monitor pre-flashes from appearing in photographs or causing people to squint, you need to purchase the optional SG-3IR infrared panel for the pop-up flash. This infrared panel makes the monitor pre-flashes mostly invisible to humans and imaging sensors, yet the remote flash units can still see it and react properly.

Fourth, don't position any of the remote flash units more than 33 feet (10.05m) from the camera. That's the maximum distance Nikon supports for the D300(S) pop-up flash in Commander mode.

If these issues bother you, then invest in the Nikon SU-800 Wireless Infrared Controller unit that replaces the pop-up flash/Commander mode combo. You mount it onto the Accessory shoe and let it control the remote slaves out to 66 feet (20.10 m) without some of the issues mentioned above.

Modeling Flash

Custom setting e4 (D300S and D300)

(User's Manual – D300S page 289; D300 page 298)

Modeling flash lets you fire a pulse of flashes to help you see how the light is wrapping around your subject. It works like modeling lights on studio flash units, except it pulses instead

of shines. You can press the Depth-of-field preview button to see the effect if you set Modeling flash to On.

This function works with Nikon's main Speedlight flash unit group: SB-900, SB-800, SB-600, or SB-R.200. It also works with the pop-up flash for limited periods. My SB-400 flash unit does not work with Modeling flash.

Here are the screens and steps used to configure Modeling flash (see Figure 4-54):

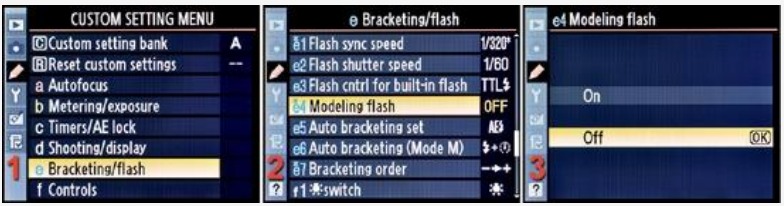


Figure 4-54. Modeling flash

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-54, image 1).
2. Highlight Modeling flash and scroll to the right (see Figure 4-54, image 2).
3. Choose one of the two choices on the list. In Figure 4-54, image 3, Off has been selected.
4. Press the OK button to lock in the setting.

Here's what each of the settings for Modeling flash accomplishes:

- ***On*** – This setting allows you to see (somewhat) how your flash will light the subject. If you have this setting turned On, you can press the Depth-of-field preview

button to strobe the pop-up flash, or any attached/ controlled external Speedlight unit, in a series of rapid pulses. These pulses are continuous and simulate the lighting that the primary flash burst will give your subject. The Modeling flash can only be used for a few seconds at a time to keep from overheating the flash unit, so look quickly.

- ***Off*** – This means that no Modeling flash will fire when you press the Depth-of-field preview button.

My Recommendation: I often forget that I have this turned on and want to check my actual depth of field on a product shot. When I press the Depth-of-field preview button, I get the modeling light instead of depth of field. I don't find this feature to be particularly useful, and it often startles me. One of these days, I'll get around to turning it off. You might like it if you do a lot of studio-style flash photography. Give it a try, but be prepared—the pulsing of the flash sounds like an angry group of hornets about to attack your face.

Auto Bracketing Set

Custom setting e5 (D300S and D300)

(User's Manual – D300S page 289 & 120; D300 page 298 & 118)

Auto bracketing set lets you choose how bracketing works for each of the camera's bracketing methods. You can set up bracketing for the exposure system (AE), flash, White balance, and Active D-Lighting (D300S only).

Let's start by reviewing the five types of bracketing on the D300S and the four on the D300. I'll explain how to use bracketing in an upcoming section:

- ***AE & flash*** – When you set up a session for bracketing, the camera will cause any type of normal picture you take to be bracketed, whether standard exposures, or using flash. See how to bracket in the next section.
- ***AE only*** – Your bracketing settings will affect only the exposure system and not the flash.
- ***Flash only*** – Your bracketing settings will affect only the flash system and not the exposure.
- ***WB bracketing*** – White balance bracketing is described in more detail in the chapter titled **Chapter 10**. It works the same as exposure and flash bracketing, except it is designed for bracketing color in "mired" values instead of light in EV step values.
- ***ADL bracketing*** (D300S only) – In this case you are bracketing Active D-Lighting (ADL) in up to five separate exposures. Each consecutive exposure uses the next higher level of Active D-Lighting.

Here are the screens and steps used to select an Auto bracketing set type (see Figure 4-55):

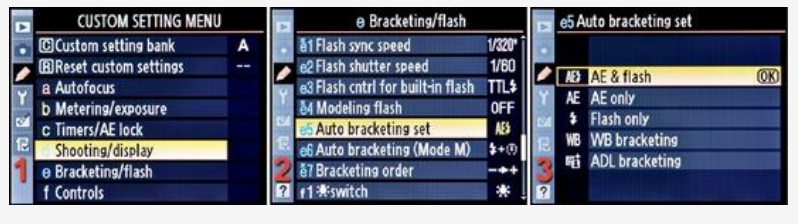


Figure 4-55. Auto bracketing set

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-55, image 1).
2. Highlight Auto bracketing set and scroll to the right (see Figure 4-55, image 2).
3. Choose one of the five choices on the list. In Figure 4-55, image 3, AE & flash has been selected. Please note that the D300S adds a new type of bracketing
   called ADL bracketing, which allows you to do a bracket with Active D-Lighting. ADL bracketing is not available on the D300.
4. Press the OK button to lock in the setting.

Now, let's look into how the various bracketing systems work. We'll first examine which button to use when starting Auto bracketing and then look at the actual bracketing functions.

How to Use the Auto Bracketing System (Bracketing Explained)

In order to use Auto bracketing properly, you must first assign one of the camera's programmable buttons to start the bracketing process, or use the factory default Fn (FUNC.) button. If you don't want to use the Fn (FUNC.) button for this purpose, you can assign BKT – Auto bracketing to the Preview button or AE-L/AF-L button instead.

One of the buttons must be available to use in conjunction with the Command dials and the Control panel in order to see and change the settings for bracketing. So, before you read this tutorial on bracketing, either decide to use the default Fn (FUNC.) button or mark your place here and go to one of the following button assignment functions and choose the one you want to use to start the bracketing process.

Here are the three Custom settings that you may configure for Auto bracketing, in case you want to use the Fn (FUNC.) button for something else. The assignment process for each of these is covered in detail later in this chapter, under Section Six – (f) Controls: Custom Settings f1 to f11:

- Assign Fn (FUNC.) button – Custom setting f5 (D300S) or Custom setting f4 (D300)
- Assign preview button – Custom setting f6 (D300S) or Custom setting f5 (D300)
- Assign AE-L/AF-L button – Custom setting f7 (D300S) or Custom setting f6 (D300)

The following information assumes that the Fn (FUNC.) button is assigned to BKT -Auto bracketing. If you have chosen another button for Auto bracketing, you'll need to use your preferred button to turn bracketing on.

Exposure Bracketing (AE and Flash Combination)

Here are the controls and steps to configure AE and flash bracketing combinations (see Figure 4-55-Figure 4-58):

Figure 4-56. Controls for Auto bracketing

1. Choose AE & flash, AE only, or Flash only from the Auto bracketing set screen, as shown in Figure 4-55, image 3.

2. Next, press and hold the Fn (FUNC.) button on the right front of the camera (see Figure 4-56, image 1, red arrow) and turn the rear Main command dial to select the number of shots in the bracket (up to 9; see Figure 4-56, images 2 and 3, red arrows). You can also select on which side of normal exposure the camera will take the shots.

3. When you hold down the Fn (FUNC.) button, you'll see symbols on your camera's Control panel similar to the ones shown in Figure 4-57, except that the symbols will be 0F and 1.0, and there will be no lines below the +/- scale. The number of shots appears on the top left of the Control panel, as shown in each screen in Figure 4-57—5F, --2F, and +3F. The number of small vertical lines hanging below the "+ ..... o ..... -" scale (just above the BKT symbol) equal the number of shots in the bracket. The position of those lines represents the EV spread of the shots in the bracket. The front Sub-command dial controls the EV steps between each

exposure in the bracket. This value appears on the top right of each screen in Figure 4-57 as 1.0, 0.3, and 0.3.

Figure 4-57. Auto bracketing (AE & flash)

4. While holding the Fn (FUNC.) button, rotate the front Sub-command dial to change the EV value of each image in the bracket, in steps of 1/3, 1/2, or 1 EV. The EV step value is set in Custom setting b2 > EV steps for exposure control. In Figure 4-57, image 1, the EV value is 1.0. So there will be a 1.0 EV step (1 stop) difference between each image in the bracket.

5. You can use Custom setting e7 > Bracketing order to set the order of the exposures. We'll discuss this in a later section titled **Bracketing Order**. The default order is normal > underexposed > overexposed. You can change it to underexposed > normal > overexposed, if you'd like.

6. Take the bracketed picture series. As you take each image, one of the lines that hang down below the +/- scale will disappear. When they are all gone, your bracket is complete. If you have your camera set to one of the Continuous release modes (CL or CH) and hold down the Shutter-release button, the camera will fire off only the number of images in the bracketed series and then stop firing.

Figure 4-57, image 1, shows a five-shot bracket with both over- and underexposure of 1.0 EV step per image. You can tell by the 5F at the top left of the Control panel, along with the number of lines hanging below the scale. The 1.0 means that there is 1.0 EV step (1 stop) between each exposure in the bracket. The fact that the 5F has no plus or minus sign in front of it tells us that the bracket uses normal, over, and underexposure.

Figure 4-57, image 2, shows a two-image bracket with 0.3 EV steps (1/3 stop) between each exposure. Notice the minus sign before the *N*F symbol (--2F)? This means that the bracket is designed to take only normal and underexposed shots—no overexposed ones. The bracketed images are on the minus side of the +/- scale.

Compare that to Figure 4-57, image 3, which represents a three-image bracket at 0.3 EV steps per exposure, in the normal and overexposure direction only (+3F).

One note about flash bracketing: If you are using an SB-900, SB-80, SB-600, SB400, or SB-R200, the flash unit may or may not be able to keep up with bracketed shots taken in Continuous release mode. If you fully dump the flash power between shots, you'll have to wait for the next shot. Also, the pop-up flash simply does not recycle fast enough to be able to shoot continuously while flash bracketing, so you'll have to take each shot individually.

Here's a short review:

- Fn (FUNC.) button plus rear Main command dial = number of exposures

- Fn (FUNC.) button plus front Sub-command dial = EV step value of bracketed exposures (1/3, 1/2, or 1 EV step)

My Recommendation: I normally bracket with at least a 1 EV step value (1 stop) so that I can get a good spread of light values in high dynamic range (HDR) images. In most cases, I will do a three- to five-image bracket, with one or two images overexposed and one or two images underexposed by 1 stop. This type of bracketing allows me to combine detail from the highlight and dark areas in-computer for the HDR exposures everyone is experimenting with these days.

Figure 4-58. Nikon D300S, AF-S Nikkor 16-85mm f/3.5-5.6G ED lens

In Figure 4-58 is a sample five-image bracket with 1.0 EV step between each exposure. I combined the five images using Photomatix Pro software (**www.hdrsoft.com**) and was pleased
with the final result. This particular image was created with a bracket using the same settings shown on the Control panel in Figure 4-57, image 1.

WB Bracketing

You can also do WB bracketing (white balance) in a way similar to flash or exposure bracketing, using the controls shown in Figure 4-56.

If you want to bracket your camera's white balance, you must set Custom setting e5 > Auto bracketing set to WB bracketing (see Figure 4-55). This means that AE or flash bracketing will not work during the time that Custom setting e5 is set to WB bracketing.

It may be a good idea to review the previous section—**Exposure Bracketing (AE and Flash Combination)**—if you've not read it yet, since WB bracketing is so similar. WB bracketing *does* ***not*** *work when your camera is in RAW mode.*

Use Figure 4-55 as the reference screens to select WB bracketing, and then use these steps to bracket the white balance:

1. Set Custom setting e5 to WB bracketing (see earlier Figure 4-55, image 3).

Figure 4-59. Auto bracketing (WB)

2. Look for the WB-BKT symbols to appear on the Control panel (see Figure 4-59). Choose the number of shots in the bracket (3F, A3F, or b3F) by pressing and holding the Fn (FUNC.) button while turning the Main command

dial left or right, up to nine shots total. The 3F symbol shows the number of images (3), as do the lines hanging below the +/- scale—just above the WB-BKT symbol.

You control the white balance color differences by bracketing toward amber or blue (A or b). Change the mired number by holding the Fn (FUNC.) button while turning the Sub-command dial left or right, up to three maximum. Each increment of color difference, called "mired", is controlled by the number at the top right of the screens in Figure 4-59. Choose 1, 2, or 3, where 1=5 mired, 2 = 10 mired, and 3 = 15 mired. Figure 4-59, image 1, has a 5 mired difference, image 2 has a 15 mired difference, and image 3 has a 10 mired difference.

Figure 4-59, image 1, shows a three-image bracket, with each image having a 5 mired difference in color. One has more amber, one is normal, and one has more blue.

Figure 4-59, image 2, shows a three-image bracket with a 15 mired difference between each image, in the amber direction only (A3F).

Figure 4-59, image 3, shows a three-image bracket with a 10 mired color
difference in the blue direction only (b3F). If you do not see an A (i.e., A3F) or b (i.e., b3F) in the image number position at top left, it simply means that the bracket goes in both directions, such as *amber* > *normal* > *blue* or *normal* > *amber* > *blue*—according to how you have Custom setting e7 > Bracketing order set.

3. Take the bracketed picture series. Interestingly, you do this by simply taking ***one*** picture. The camera takes that picture, reapplies the color filtration for each image in

the bracket, and then saves each image as a separate image file with a new consecutive file number and bracketed color value. This works very differently from AE or flash bracketing, where you have to fire off each individual frame of the bracket. WB bracketing is very easy since you only have to set the bracket in the Control panel and take one picture. However many images (up to nine) are in the bracket simply appear on your memory card. Nikons are fun!

Here's a short review:

- Fn (FUNC.) button plus rear Main command dial = number of exposures
- Fn (FUNC.) button plus front Sub-command dial = 5, 10, or 15 mired steps (1–3)

My Recommendation: Personally, I prefer to use RAW mode and make minor or major color adjustments in the computer post-processing stage of the image's preparation. However, you may want to use WB bracketing while shooting JPEGs since it degrades the image when you modify and resave a JPEG file. Only people with extreme concern over color balance will find WB bracketing useful. Most of us don't need it.

What Is Mired?

Mired changes simply modify the color of your image, in this case toward amber (reddish) or blue. In effect, it warms or cools the image. The color changes are applied directly to the image by the camera when shooting JPEGs or are saved as a marker when shooting RAW images. You

don't have to worry about mired values unless you are a color scientist. You can just determine whether you like the image the way it is or would prefer that it be warmer or cooler and bracket accordingly. In WB bracketing, the A direction warms, while the b direction cools. Technically, mired is calculated by multiplying the inverse of the color temperature by 106.

I'd rather let my camera figure mired values and then judge them with my eye, wouldn't you? Remember, if you shoot in RAW, you can modify color values later in your computer. Otherwise, they are applied permanently to JPEG files.

ADL Bracketing (D300S only)

ADL bracketing (ADL = Active D-Lighting) is available only in the D300S (not the D300). It is designed to let you shoot a normal image and then a series of up to four additional images with Active D-Lighting applied at progressively higher levels to each.

As you set ADL bracketing from two to five shots, you are setting the camera to switch to a higher ADL level for each consecutive shot. The progressive levels are Off, Low, Normal, High, and Extra High.

Here are the steps to use ADL bracketing:

1. Using Figure 4-55, image 3, as a guide, set your camera to ADL bracketing.

2. Hold down the Fn (FUNC.) button and turn the rear Main command dial to select the number of frames you want in the bracket (1 to 5 images). You'll see AdL on the top left of the Control panel and the number of frames in the bracket series on the top right (5F). Figure 4-60 shows a bracket of five frames, which means that the camera will use all five available levels of Active D-Lighting as the five images are taken.

3. You'll only be able to see hanging lines under the +/- scale for four of the shots—an arrow points to the right for the fifth. Custom setting e7 > Bracketing order does not apply to ADL bracketing.

4. Take the bracketed series. If you use Continuous release (CL or CH), you can shoot the number of frames in your bracket by holding down the Shutter-release button. Once the bracket is complete, the camera will stop firing. As each shot is taken, you'll see one of the vertical lines just above the BKT symbol disappear.

Figure 4-60. Five frame bracket

My Recommendation: This is a great way to capture very important shots and try to get extra shadow detail and highlight protection in some of them. You may not need ADL

bracketing on all shots, but on very important images where you were slightly off on your exposure selection, ADL will help to open shadows (adding noise, unfortunately) and mildly protect the highlights. Of course, if you shoot in RAW mode you can apply ADL in-computer. I don't bracket ADL very often. But, I'm glad to know it's there when I need it.

One final note about bracketing of any type: *Turn it off when you're done!* I often forget and then wonder why my camera keeps under- and overexposing a series of images. Only after wasting several images do I realize that I left bracketing turned on. You'll see what I mean if you use AE & flash bracketing often, as I do.

Auto Bracketing (Mode M)

Custom setting e6 (D300S and D300)

(User's Manual – D300S page 290; D300 page 299)

Auto bracketing (Mode M) is a series of four selections that let you, or the camera, control the flash, shutter speed, and aperture in various ways during a bracketing operation, when the camera is set to M-Manual exposure mode.

This gives you a little finer control over manual camera settings while you are taking several exposures within a bracket of images.

Here are the screens and steps used to configure Auto bracketing (Mode M) (see Figure 4-61):

Figure 4-61. Auto bracketing (Mode M)

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-61, image 1).
2. Highlight Auto bracketing (Mode M) and scroll to the right (see Figure 4-61, image 2).
3. Choose one of the four choices on the list. In Figure 4-61, image 3, Flash/speed has been selected.
4. Press the OK button to lock in the setting.

Here is a list of the four settings and what each does. The camera controls the selected setting when you are using M-Manual exposure mode while bracketing. These functions are dependent on how Custom setting e5 > Auto bracketing set is configured.

- ***Flash/speed*** – This setting allows you to control the aperture for best depth of field, while still doing bracketing. The camera will control the shutter speed. If Custom setting e5 > Auto bracketing set is set to AE & flash, the camera will vary the shutter speed and flash level to expose the bracketed images while you control the aperture. If e5 is set to AE only, then the camera will only vary the shutter speed to get the exposures.

- ***Flash/speed/aperture*** – This setting is for those who want the camera to control the shutter speed, aperture, and flash while still doing bracketing. If Custom setting e5 > Auto bracketing set is set to AE & flash, the camera will vary
  the shutter speed, aperture, and flash level to expose the bracketed images. If e5 is set to AE only, then the camera will vary the shutter speed and aperture to get the exposures.

- ***Flash/aperture*** – This setting is for those who want to control the shutter speed for best action shots, while still doing bracketing. The camera will control the aperture and flash. If Custom setting e5 > Auto bracketing set is set to AE & flash, the camera will vary the aperture and flash level to expose the bracketed images. If e5 is set to AE only, then the camera will only vary the aperture to get the exposures.

- ***Flash only*** – This setting is for those who want to control only the flash while doing bracketing. The camera will only vary the flash level to get the bracketed exposures. AE only obviously does not apply with this setting.

My Recommendation: Since I am mostly a nature shooter, I often leave my camera set to Flash/speed so that the camera will control the shutter speed when I take a series of bracketed images, but I'll control the aperture. That way I can choose how much depth of field I want to allow in my images.

If I were shooting important action shots and wanted to bracket, I'd select Flash/aperture so that the camera would

control the aperture and flash while I control the shutter speed for action.

If I were letting only my Speedlight flash control the exposure, as with indoor shots, I might use Flash only during the bracket.

Finally, if I wanted to let the camera alone decide how to get the best exposure during the bracket, I might use Flash/speed/aperture. Then all I have to do is take pictures and let the camera do the rest. This seems to me to be a small violation of the principle of manual exposure though.

Bracketing Order

Custom setting e7 (D300S and D300)

(User's Manual – D300S page 290; D300 page 300)

Bracketing order allows you to choose the order of your exposure settings (normal, overexposed, and underexposed) during a bracketing operation.

There are two bracketing orders available in the D300(S). These allow you to control which images are taken first, second, and third in the bracketing series.

Here are the three values in the bracket order and what they each mean:

- MTR = Metered value (normal exposure)
- Under = Underexposed
- Over = Overexposed

Next, let's see how these are used during bracketing:

- ***MTR > under > over –*** With this setting, the normal exposure (MTR) is taken first, followed by the underexposed image, then the overexposed image. If you are taking a group of five images in your bracket (see Custom setting e5), the camera will take the images like this: normal exposure > most underexposed > least underexposed > least overexposed > most overexposed. For WB bracketing the pattern is normal > amber > blue. This does not apply to ADL bracketing.
- ***Under > MTR > over –*** Using this order for bracketing means that a five image bracket will be exposed in the following manner: most underexposed > least underexposed > normal exposure > least overexposed > most overexposed. For WB bracketing the pattern is amber > normal > blue. This does not apply to ADL bracketing.

Finally, let's look at the steps and screens to actually configure the Bracketing order (Figure 4-62):

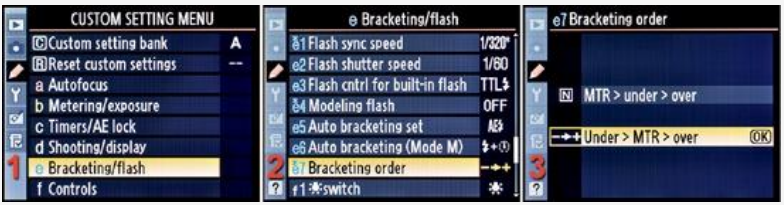


Figure 4-62. Bracketing order

1. Select e Bracketing/flash from the Custom Setting Menu and scroll to the right (see Figure 4-62, image 1).

2. Highlight Bracketing order and scroll to the right (see Figure 4-62, image 2).
3. Choose one of the two bracketing orders on the list. In Figure 4-62, image 3, Under > MTR > over has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: I leave Bracketing order set to MTR > under > over so that when the images are displayed in series by the camera, I can see the normal exposure (MTR) first and then watch how it varies as I scroll through the bracketed images. It gets confusing to me if there are nine images in a bracket and I am trying to figure out which one is the MTR image, as I would be with the other bracketing order.

If that doesn't suit you, change it to the other direction Under > MTR > over. The normal exposure will be in the middle of the bracket instead of at the beginning. Some prefer the more natural flow of that bracketing order (under to over).

Section Six – (f) Controls: Custom Settings f1 to f11

Within the Controls menu you'll find 11 settings in the D300S and 10 in the D300. The Custom Setting numbers within this section differ in the D300S and D300, as explained in the parentheses following the setting name:

▪ Backlight switch	(f1 in D300S only)
▪ Multi selector center button	(f2 in D300S and f1 in D300)
▪ Multi selector	(f3 in D300S and f2 in D300)
▪ Photo info/playback	(f4 in D300S and f3 in D300)
▪ Assign Fn button	(f5 in D300S and f4 in D300)
▪ Assign preview button	(f6 in D300S and f5 in D300)
▪ Assign AE-L/AF-L button	(f7 in D300S and f6 in D300)
▪ Customize command dials	(f8 in D300S and f7 in D300)
▪ Release button to use dial	(f9 in D300S and f8 in D300)
▪ No memory card?	(f10 in D300S and f9 in D300)

▪ Reverse indicators	(f11 in D300S and f10 in D300)

Switch (Backlight)

Custom setting f1 (D300S only)

(User's Manual – D300S page 291)

The Backlight switch setting is new on the D300S. Nikon has used this same control for many years on the Power switch—controlling the backlight for the Control panel. However, with the D300S, Nikon has added extra functionality. The Power switch's Backlight switch position now controls two functions. One is for the Control panel backlight, and the other is for the Information display (rear Monitor) backlight.

Figure 4-63. Backlight switch setting on Power switch

When you push the switch, as shown in Figure 4-63, you'll turn on the backlight for just the Control panel or both it and the Information display. I've greatly enlarged the Backlight switch's icon in Figure 4-63, image 2 so that you can see it better. The red triangle points to the tiny icon on the camera's Power switch.

The Control panel and Information display have different backlight time-outs controlled by separate functions. The Control panel backlight time-out is controlled by Custom setting C2 (Auto meter-off delay). The Information display backlight time-out is controlled by Custom setting C4 (Monitor off delay). You can set these two time-outs first, and when you activate the Backlight switch, both timers will start counting down separately.

Here are the screens and steps to select what the Backlight switch controls (Figure 4-64):

Figure 4-64. Backlight switch screens

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-64, image 1).
2. Highlight switch and scroll to the right (see Figure 4-64, image 2).

3. Choose one of the two types on the list. In Figure 4-64, image 3, LCD backlight (Control panel only) has been selected.

4. Press the OK button to lock in the setting.

My Recommendation: While this function could be useful if one uses the Information display frequently, I suspect that many D300(S) users do not depend on the Information display as often as those who own lower-cost Nikons. The lower-end cameras are more and more Information display centered since many of their users came over from the point-and-shoot world and expect that easy, shortcut style of camera configuration.

Only recently has Nikon added more functionality to the Information display on the D300(S)-level cameras, which sets a pattern that will only grow in future cameras. How long will it be before we have touch-screen technology?

In any case, I still mostly use the Backlight switch setting to turn on the backlight for the Control panel only. I would rather simply press the Info button when I want access to the Information display on the rear monitor.

Multi Selector Center Button

Custom setting f2 (D300S) and f1 (D300)

(User's Manual – D300S page 291; D300 page 301)

This Custom Setting called—not surprisingly—Multi selector center button determines how the Multi selector center button

works. This setting comes in two parts, according to what mode the D300(S) is currently using.

When I refer to the name in green (Multi selector center button), I'm speaking of the Custom Setting by that name. When you see it in blue (Multi selector center button), I'm discussing the physical Multi Selector. See the color legend page at the beginning of this book.

The D300S and D300 are different in how the Multi Selector is made. Nikon added an actual button to the center of the Multi Selector on the D300S. The D300 requires that you press the entire Multi Selector to achieve the same result.

In other words, on the D300S you press the Multi Selector center button, while on the D300 you press the center of the Multi Selector.

To cut down on confusion, I am going to use the name Multi selector center button for both of these styles of pressing the middle of Multi Selector in this section. When you see that name, know that it means you should press the center of the Multi Selector, extra button or not.

The two modes that affect how the Multi selector center button works are the Shooting and Playback modes:

- Shooting mode is in force when you're using the camera to take pictures.
- Playback mode is in use when you are examining pictures on the rear Monitor.

Let's look at each mode in detail.

Shooting Mode

First, let's see how pressing the center of the Multi Selector works in Shooting mode. Here are the screens and steps used to configure Multi selector center button in Shooting mode (see Figure 4-65):

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-65, image 1).
2. Highlight Multi selector center button and scroll to the right (see Figure 4-65, image 2).

Figure 4-65. Multi selector center button (Shooting mode)

3. Select Shooting mode and scroll to the right (see Figure 4-65, image 3).

4. Choose one of the three choices on the list. In Figure 4-65, image 4, Select center focus point has been chosen.

5. Press the OK button to lock in the setting.

There are three selections in Shooting mode, as follows (see Figure 4-65, image 4):

- ***Select center focus point*** – Often, when shooting, you'll be using the Multi Selector with your thumb to move the selected focus point (AF point) around the Viewfinder to focus on the most appropriate area of your subject. When you are done, you have to scroll the AF point back to the center. Not anymore! If Select center focus point is chosen, the focus point pops back to the center point of the Viewfinder when you press the Multi selector center button. This is the default action of the button.

- ***Highlight active focus point*** – Sometimes, when the Viewfinder is showing a confusing subject, it may be a little hard to see the small black AF point bracket. When Highlight active focus point is selected and you press the Multi selector center button, the AF point lights up in red for easy viewing of its current location. When using the D300, be careful because the Multi Selector is sensitive to sideways movement and it is easy to move the sensor while trying to find it. That is usually not a problem with the D300S and its new Multi selector center button.

- ***Not used*** – This does what it says—nothing happens when you press the Multi selector center button. When I first saw this setting, I thought it was a reserved setting for a future firmware update. Finally, I realized that it

means that the Multi selector center button is disabled when Not used is selected.

D300 (Only) Multi Selector Usage Clue

When you're using the Multi Selector on the D300, even a little sideways pressure on the center of the button causes it to perform some other function than what was intended. That's why they added a Multi selector center button to the D300S. You'll have to use the Multi Selector carefully on the D300. I've found that it seems more accurate when I place the entire pad of my thumb completely over the button and press down instead of inserting the very tip of my thumb into the middle of the button. You try it and see which way works better for you.

Playback Mode

Now, let's look over how the Multi selector center button can be used in Playback mode. Here are the screens and steps used to configure it in Playback mode (see Figure 4-66):

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-66, image 1).
2. Highlight Multi selector center button and scroll to the right (see Figure 4-66, image 2).
3. Select Playback mode and scroll to the right (see Figure 4-66, image 3).

Figure 4-66. Multi selector center button (Playback mode)

4. Choose one of the four choices on the list. In Figure 4-66, image 4, View histograms has been chosen. If you choose Zoom on/off, you'll need to scroll to the right and select one of the three sub-settings (see Figure 4-67 in the upcoming sub-section section called Zoom on/off). If you select Choose slot and folder in the D300S, or Choose folder in the D300, you'll need to be aware of some additional screens your camera can present. See Figure 4-68 and Figure 4-69 in the upcoming sub-sections called **Choose slot and folder (D300S)** or **Choose folder (D300)**.

5. Press the OK button to lock in the setting.

There are four selections in Playback mode, as follows (see Figure 4-66, image 4):

Thumbnail on/off

This feature allows you to switch from viewing one image on your camera's Monitor to viewing multiple thumbnails instead. It's a toggle, so you can press the Multi selector center button to turn thumbnail view on and off.

View histograms

I discovered this really cool feature while I was writing a previous book and immediately switched to it as my default setting. I love this! It shows a yellow luminance histogram, which seems to most closely represent the green channel of the RGB.

When the Multi selector center button function is set to View histograms, I can have an image open on my monitor, then press and hold the Multi selector center button to view the histogram. This saves a lot of scrolling around through the data, RGB histograms, and information screens.

It's a quick histogram view that disappears when the Multi selector center button is released. Great feature!

Zoom on/off

If you regularly want to zoom into your image on the Monitor without using the normal zoom in and out buttons, this is a good feature for you. If you have an image showing on the Monitor—and Zoom on/off is selected—when you press the

Multi selector center button the image zoom jumps immediately to one of three levels of zoom, skipping the middle steps. The three levels are shown in Figure 4-67, which starts where Figure 4-66, image 4 leaves off:

Figure 4-67. Multi selector center button (Zoom on/off settings)

- Low magnification seems to be the same as viewing the image at 100% pixel-peeping level.
- Medium magnification is two levels deeper magnification, just past 100%.
- High magnification is as far in as the zoom will go, the highest point of magnification, which is way past 100%. The zoom display centers on the focus point used to take the image. If you are using thumbnail view, you can select from a series of images on the monitor. When you have one of the images selected, even though it is not full size, you can press the Multi selector center button and the image is first enlarged to full size, then to whichever of the three zoom magnification levels you previously selected. When you press the button again, the camera switches back to thumbnail view.

The D300S and D300 have slightly different menus for the next function. The D300S has a function called Choose slot and folder, while the D300 has Choose folder. The cameras' menus are different under this setting because the D300 has no extra SD memory card slot, while the D300S has both an SD and CF card slot. I've divided the two menus into separate sub-sections to prevent confusion.

Choose slot and folder (D300S)

When you select Choose slot and folder in the D300S, you'll have a couple of screens available when you are examining an image in Playback mode. You get to these screens by pressing the Multi Selector center button.

Here is a look at the screens (see Figure 4-68, images 2 and 3):

Figure 4-68. Multi selector center button (Choose slot and folder – D300S)

Notice in Figure 4-68, that when you've selected Choose slot and folder you are able to switch between the camera's two card slots and between any folders you have on the selected card. You can only get to these screens by pressing the Multi selector center button when a picture is on the Monitor.

If there is only one folder on the current memory card, this setting will have little effect, except to display the one folder. You cannot choose a memory card with no folders on it; the selection for that card slot will be grayed out. The same applies if you try to select a memory card slot with no card in the slot.

Choose folder (D300)

When you select Choose folder you'll have an extra screen available when you are examining an image in Playback mode. You get to it by pressing the Multi Selector center button.

Here is a look at the screen (see Figure 4-69, image 2).

Figure 4-69. Multi selector center button (Choose folder – D300)

As you can see in Figure 4-69, when you've selected Choose folder there is an additional screen available that lets you switch between the camera's folders on the memory card. You can only get to this extra screen by pressing the Multi selector center button when a picture is on the Monitor.

Obviously, if your current memory card only has one folder, this setting will have little effect, except to display the one folder.

My Recommendation: I have my camera set so that when I press the Multi selector center button in Shooting mode, it jumps to the center AF point. It saves time because
I don't have to scroll back manually. The setting that does this is Shooting mode > Select center focus point.

When I press the Multi selector center button in Playback mode, I have the camera show me a luminance histogram with the setting Playback mode > View histograms. I absolutely adore being able to see a histogram for an image I just took by pressing the Multi selector center button instead of scrolling to the histogram screen. It is very fast and lets me see my camera's histogram when I need it most.

Play with the other settings concerning thumbnails and zooming. You may want to use one of those instead of my favorites.

Multi Selector

Custom setting f3 (D300S) and f2 (D300)

(User's Manual – D300S page 292; D300 page 302)

The Multi selector function allows you to set the camera's Multi Selector so that any usage of it turns the light meter on or resets its delay back to the value found in Custom setting c2 (Auto meter-off delay). This allows the light meter to stay on after you've used the Multi Selector until the Auto meter-off delay timeout expires.

Here are the screens and steps used to configure the Multi selector function (Figure 4-70):

Figure 4-70. Multi selector

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-70, image 1).
2. Highlight Multi selector and scroll to the right (see Figure 4-70, image 2).
3. Choose one of the two selections from the list. In Figure 4-70, image 3, Do nothing has been selected.
4. Press the OK button to lock in the setting.

Here is an explanation of what these two selections accomplish:

- ***Reset meter-off delay*** – This setting is a handy way to turn on the exposure meter without pressing the Shutter-release button halfway down. Maybe you'd like to meter the subject but not cause autofocus to start, so instead of using
  the Shutter-release button to turn the meter on, you can use the Multi Selector. I find this to be a useful function for another reason. I'll often want to move an AF point around the Viewfinder, but the light meter has gone off, so it won't move. I have to press the Shutter-release

button halfway down to activate the meter and then scroll the AF point around the Viewfinder. When Reset meter-off delay is selected, any usage of the Multi Selector causes the light meter to come on. Custom setting C2 (Auto meter-off delay) controls how long it stays on; the default is 6 seconds.

- ***Do nothing –*** If the light meter is off, it stays off when you press the Multi Selector.

My Recommendation: Recently, I've started leaving my camera set to Reset meter-off delay so that any use of the Multi Selector will keep my camera's meter from going off. The only drawback is shorter battery life, since this will tend to keep the meter on longer.

Photo Info/Playback

Custom setting f4 (D300S) and f3 (D300)

(User's Manual – D300S page 292; D300 page 302)

Photo info/playback determines how the Multi Selector functions when you are scrolling in the Info and Playback screens (see Figure 4-71, image 3). The default for image viewing is to press the Multi Selector to the left or right. To view the Info screens for a particular image, you scroll up or down when the image is on the Monitor.

If you don't like it that way you can reverse it. Then you'll review images by pressing up or down on the Multi Selector and view the Info screens by pressing left or right.

Here are the screens and steps used to change the Multi Selector direction for image Info and Playback screen viewing (see Figure 4-71):

Figure 4-71. Photo info/playback

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-71, image 1).
2. Highlight Photo info/playback and scroll to the right (see Figure 4-71, image 2).
3. Choose one of the two selections from the list. Figure 4-71, image 3, shows the factory default of left-right for photo Playback and up-down for Info viewing. Choose the other selection to reverse the directions.
4. Press the OK button to lock in the setting.

My Recommendation: Nikon seems to want to make the D300(S) very flexible so that it can meet the needs of a wide range of user preferences. I like the factory default of left-right for image Playback and up-down for Info viewing. If you like it the other way, just reverse it. Simple enough!

Assign Fn (FUNC.) Button – Custom Setting f5 (D300S) and f4 (D300)

(User's Manual – D300S page 292; D300 page 303)

Assign Preview Button – Custom Setting f6 (D300S) and f5 (D300)

(User's Manual – D300S page 296; D300 page 306)

Assign AE-L/AF- L Button – Custom Setting f7 (D300S) and f6 (D300)

(User's Manual – D300S page 296; D300 page 307)

Assign Fn (FUNC.) button, Assign preview button, and Assign AE-L/AF-L button are all discussed in this one section. All three work exactly the same way, so instead of repeating the same instructions three times, I chose to explain them once.

When I speak of the ***Selected button***, I am talking about the camera button you want to configure—Fn (FUNC), Preview, or AE-L/AF-L. When you see the words ***Selected button*** in bold italics please mentally replace this with your favorite button. You can assign various camera functions to any of the three buttons mentioned.

After we consider each of the screens used to assign the various functions, we'll look at each function in detail in the section **Assignable Function List**. There are a lot of different functions from which to select. The screens, steps, and

settings we are about to review are designed to let you customize the usage of the ***Selected button*** alone or the ***Selected button*** + Command dials.

Here is a list of the screens followed by the steps used to configure the ***Selected button***:

- Assign Fn (FUNC.) button (see Figure 4-72)
- Assign preview button (see Figure 4-73)
- Assign AE-L/AF-L button (see Figure 4-74)

Refer back to these three FIGs as you step through the many choices for how you'll configure your ***Selected button***.

Figure 4-72. Assign Fn (FUNC.) button

Figure 4-73. Assign preview button

Figure 4-74. Assign AE-L/AF-L button

Remember that the next nine steps are designed to explain any of the three buttons to which you can assign a function. ***Selected button*** represents the button you are currently assigning. For example, Preview button press is represented by ***Selected button*** press.

1. See Figure 4-72 to 47C for individual button assignment screens:
    - Figure 4-72 = Fn (FUNC.) button
    - Figure 4-73 = Preview button (a.k.a., Depth-of-field preview button)
    - Figure 4-74 = AE-L/AF-L button
2. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-72, Figure 4-73, or Figure 4-74, image 1).
3. Highlight Assign ***Selected Button*** (Fn, Preview, or AE-L/AF-L) and scroll to the right (see Figure 4-72, Figure 4-73, or Figure 4-74, image 2). This is where you choose which button you are working with and select it for function assignment.
4. Choose ***Selected button*** press and the scroll to the right (see Figure 4-72, Figure 4-73, or Figure 4-74, image 3). The next step makes an assignment for when you simply press the button.
5. Select one of the functions from the list. This will assign the function you choose to a single button press of the ***Selected button*** you are configuring (see Figure 4-72, Figure 4-73, or Figure 4-74, image 4). See the upcoming section titled **Assignable Function List** for an explanation of each function.
6. Press the OK button to lock in the assignment for ***Selected button*** press.
7. Now you'll highlight ***Selected button*** + command dials and scroll to the right (see Figure 4-72, Figure 4-73, or

Figure 4-74, image 5). The next step makes an assignment for when you press and hold the button, and then rotate one of the Command dials.

8. Choose one of the functions to assign to the ***Selected button*** + command dials (see Figure 4-72, Figure 4-73, or Figure 4-74, image 6). The upcoming section titled **Assignable Function List** will explain what each function does.

9. Press the OK button to lock in the setting for ***Selected button*** + command dials.

Note: For some reason, Nikon chose to call the Fn (FUNC.) button plus "command dials" selection by a different name. Notice that in Figure 4-72, image 3, the second setting is called Fn button + dials. On the other assignable buttons, the name is different: Preview button + command dials and AE-L/AF-L button + command dials. Maybe it was an oversight in the programming department that the word "command" was left out of the Fn button + dials setting name.

Now, let's look at the **Assignable Function List** to see what amazing powers we can give each of the assignable buttons on our cameras.

Assignable Function List

Let's review each of the functions you can assign to the ***Selected button*** press. Then we'll look at the ones you can assign to the ***Selected button*** + command dials.

Please review the functions that have a double asterisk (**) carefully. Setting those functions will disable functionality in another part of the camera.

Note: The camera's user's manual has information for these assignments on pages 292–296 for D300S and 303–307 for D300.

Selected button press

- ***Preview**** – Normally, the depth-of-field function is controlled by the Depth-of-field preview button. Some users may not like the location of the Depth-of-field preview button and—since it is also configurable—decide to switch the Fn (FUNC.) button (for instance) with the Depth-of-field preview button. Then, when Preview is selected in one of these Custom Settings, the Fn (FUNC) button will activate depth of field preview instead. Setting this function disables other functionality in the D300(S). Please see the** note at the end of this section.
- ***FV lock**** – If you set ***Selected button*** to FV lock, the button will cause the built-in Speedlight or the external Speedlight to emit a monitor pre-flash and then lock the flash output to the level determined by the pre-flash until you press the ***Selected button*** a second time. Setting this function disables other functionality in the D300(S). Please see the** note at the end of this section.
- ***AE/AF lock*** – Enabling this function causes AE (exposure) and AF (focus) to lock on the last meter and autofocus system reading while the ***Selected button*** is held down.
- ***AE lock only*** – This allows you to lock AE (exposure) on the last meter reading when you hold down the ***Selected button***.

- ***AE lock (Reset on release)** –*** Enabling this function causes AE (exposure) to lock on the last meter reading when the ***Selected button*** is pressed once. It stays locked until you press the ***Selected button*** again. Releasing the shutter resets the AE Lock just like pressing the ***Selected button*** a second time does. Setting this function disables other functionality in the D300(S). Please see the** note at the end of this section.

- ***AE lock (Hold)** –*** Enabling this function causes AE (exposure) to lock on the last meter reading when the ***Selected button*** is pressed once. It stays locked until you press the ***Selected button*** again. In other words, the ***Selected button*** toggles AE lock. This is similar to AE lock (Reset on release) except that releasing the shutter *does not reset* the AE lock hold. You must press the ***Selected button*** again to release AE lock. Setting this function disables other functionality in the D300(S). Please see the** note at the end of this section.

- ***AF lock only –*** When set, this function locks the AF system (focus) on the last autofocus reading while you hold down the ***Selected button***.

- ***AF-ON*** (Assign AE-L/AF-L button only) – If you set AE-L/AF-L button press to AF-ON, then the AE-L/AF-L button duplicates the functionality of the AF-ON button and will initiate autofocus. AF-ON cannot be assigned to the other two buttons (Fn and Preview). It doesn't even appear in their lists of functions.

- ***Flash off –*** This is a temporary way to disable the flash for when you want to leave your flash turned on and still

be able to take a non-flash picture. While you hold down the ***Selected button***, the flash is disabled.

- ***Bracketing burst*** – Normally, during a bracketing sequence with the shutter release set to Single Frame Release Mode—the S next to CL and CH on the Release mode dial—you have to press the Shutter-release button once for each of the images in the bracket. The only way to shoot all the images in the bracketed series without letting up on the Shutter-release button is to set the Release mode dial to CL or CH. If you set Bracketing burst, you can hold down the ***Selected button***, while also holding down the Shutter-release button, and the camera will take all the images in the bracket without letup. This seems a bit redundant to me. I think I'd rather just set the Release mode to CL-Continuous-low or CH-Continuous-high release mode and take the bracketed burst.

  This applies to AE, Flash, and ADL bracketing, which take one image for each shutter release. WB bracketing is mentioned in the manual too, but since it takes the entire bracket in one shutter release, what's the point? If you use this function for WB bracketing and hold down the Shutter-release button, you'll create multiple groups of bracketed images on your memory card. Remember, WB bracketing takes the entire bracket in one shutter press. Multiple shutter releases will capture numerous multi-image WB brackets. Be careful with this function when using WB bracketing.

- ***Matrix metering*** – If you do not use Matrix metering as your primary metering system but want to use it occasionally, this setting allows you to turn on Matrix

metering while you hold down the ***Selected button***. When you release the ***Selected button***, the camera returns to your customary meter type, such as Spot or Center-weighted metering.

- ***Center-weighted –*** If you normally use Matrix or Spot metering as your primary metering system, you can temporarily use Center-weighted metering by holding down the ***Selected button***. When you release the button, the camera returns to your customary meter type, such as Spot or Matrix.

- ***Spot metering –*** If you normally use another metering system besides Spot metering, you can temporarily switch to Spot by holding down the ***Selected button***. When you release the button, the camera returns to your customary meter type, such as Center-weighted or Matrix.

- ***Playback***** (D300S only) – This function causes the ***Selected button*** to act as if you had pressed the Playback button. Nikon included this so that you could play back images when using a big telephoto lens that requires two hands to use. Setting this function disables other functionality in the D300(S). Please see the** note at the end of this section. This function applies to the D300S only.

- ***Access top item in MY MENU*** (D300S only) – You can press the ***Selected button*** to jump directly to the top item in My Menu. This allows you to quickly modify a favorite menu item. This function applies to the D300S only.

- ***+NEF (RAW)**** (D300S only) – If you are a regular JPEG shooter, and have JPEG fine, normal, or basic selected as your normal image capture format, you can use the ***Selected button*** to temporarily switch to NEF (RAW) mode. Once you take the RAW format picture, the camera switches back to JPEG. If you decide not to take the NEF (RAW) picture, just press the ***Selected button*** again to return to JPEG mode. Setting this function disables other functionality in the D300(S). Please see the** note at the end of this section. This function applies to the D300S only.

- ***None*** (default) – When this setting is enabled, the ***Selected button*** does nothing.

**** Important note:** If you decide to use this particular function, please realize that it will disable the ***Selected button*** + command dials feature of the camera. You'll see a warning on the screen when you set it, but by then it will have turned the ***Selected button*** + command dials to None. If you then go back and try to set a value under ***Selected button*** + command dials, the camera will give you a warning and set the ***Selected button*** function to None. Both cannot be used at the same time (i.e., they are mutually exclusive).

Selected button + command dials

- ***1 step spd/aperture*** (Fn button + dials and Preview button + command dials only) – If you have Custom setting b2 (EV steps for exposure cntrl.) set to 1/3 step like most photographers, you can change your camera's shutter speed and/or aperture in 1/3 EV steps, while in A-Aperture priority, S-Shutter priority, and M-Manual. However, you may want to use larger EV steps

occasionally. By setting 1 step spd/aperture, you can hold down the ***Selected button*** and the camera will then allow you to change the shutter speed or aperture in 1 step increments (1 EV step) instead of the normal 1/3 step. Example shutter speeds in 1/3 EV steps are: 1/60, 1/80, 1/100, 1/125, 1/160. Example shutter speeds in 1 EV step are 1/60, 1/125, 1/250, 1/500, 1/1000. This cannot be assigned to AE-L/AF-L button + command dials.

- ***Choose non-CPU lens number*** – If you have configured non-CPU lenses under the camera's Setup Menu > Non-CPU lens data, then you'll be able to hold down the
  Selected button while rotating the Sub-command dial to scroll through a list of up to nine non-CPU lenses.

- ***Auto bracketing*** – Hold down the ***Selected button*** while rotating the rear Main command dial to set the number of images in the bracket. You can also hold down the ***Selected button*** and rotate the front Sub-command dial to select the bracketing increment.

- ***Dynamic AF area*** – This function only works under specific circumstances. Continuous-servo AF must be on (Focus mode selector is on C), and Dynamic-area AF must be selected (AF area mode selector is in its middle position). Then you can hold down the ***Selected button*** and rotate either of the Command dials to change the number of AF points to one of four settings: 9, 21, 51, or 51 points (3D-tracking).

- ***None*** – Nothing happens when you hold down the ***Selected button*** and rotate the Command dials.

My Recommendation: There are so many available functions here that I'm loathe to recommend anything. People shoot in so many different ways, and there are so many choices in this list that it's hard to pin it down to just a few. However, I will tell you what I set mine on, and you can then experiment and see if that suits your style too. If not, you've got a lot of choices!

My favorites:

- Assign Fn (FUNC.) button press – Spot metering (My normal meter is Matrix).
- Assign Fn (FUNC.) button + dials – Auto bracketing.
- Assign preview button press – Preview (depth of field preview).
- Assign preview button + command dials – None (I don't use this).
- Assign AE-L/AF-L button press – AE lock only.
- Assign AE-L/AF-L button + command dials – Choose non-CPU lens number.

I hope you'll experiment with each of these settings and see if you like others better. Nikon has given us amazing configurability for our assignable buttons, so why not test each one?

Customize Command Dials

Custom setting f8 (D300S) and f7 (D300)

(User's Manual – D300S page 297; D300 page 308)

Customize command dials does what it sounds like—it lets you change how the Command dials operate. There are several operations you can modify:

- Reverse rotation
- Change main/sub
- Aperture setting
- Menus and playback

Let's examine each of these items and the screens and steps used to change them (see Figure 4-75):

Figure 4-75. Customize command dials

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-75, image 1).
2. Highlight Customize command dials and scroll to the right (see Figure 4-75, image 2).
3. Choose one of the four selections from the list. In Figure 4-75, image 3, Reverse rotation has been selected.
4. Scroll to the right and use the screens and steps under each of the following sections (see Figure 4-76 to Figure 4-79) to configure the various functions.

Reverse rotation

This setting allows you to change the rotation direction of the Command dials. There are two selections:

- Yes – The Command dials are reversed. An example is this: Normally, when the D300(S) is set to Aperture priority auto, and you rotate the Sub-command dial to the right, the aperture decreases, like this: f/5.6 to f/6.3 to f/7.1, etc. If you select Yes under Reverse rotation, then the direction of aperture changes will be reversed when you turn the Sub-command dial to the right, like this: f/5.6 to f/5 to f4.5, etc. Instead of getting smaller, the aperture gets larger. It is reversed.
- No – The direction of the Command dials is set to the factory default.

Here are the screens and steps to change the rotation direction of the Command dials (see Figure 4-76):

Figure 4-76. Customize command dials (Reverse rotation)

1. Continuing from Figure 4-75, image 3, select Reverse rotation and scroll to the right (see Figure 4-76, image 1).
2. Select Yes or No from the list (see Figure 4-76, image 2).
3. Press the OK button to lock in the setting.

My Recommendation: I leave the Command dials rotation set to factory default. I find life confusing enough without my camera working backwards!

Change main/sub

This setting allows you to swap the functionality of the two Command dials. The Main command dial will take on the functions of the Sub-command dial, and vice versa. Here are the two settings:

- On – When set to Off, the Main command dial controls shutter speed while the Sub-command dial controls aperture. By selecting On, you reverse the functionality so that the Sub-command dial controls shutter speed while the Main command dial controls aperture.
- Off – The functionality of the Command dials is set to the factory default.

Here are the screens and steps to swap the functionality of the Command dials (see Figure 4-77). Continuing from Figure 4-75, image 3, select Change main/sub and scroll to the right (see Figure 4-77, image 1).

Figure 4-77. Customize command dials (Change main/sub)

1. Select On or Off from the list (see Figure 4-77, image 2).
2. Press the OK button to lock in the setting.

My Recommendation: I leave the Command dials set to factory default (Off). I've been using Nikons for too many years to change Command dial functionality now!

Aperture setting

There are two selections that allow you to modify how the camera treats CPU lenses that have aperture rings on the lens (non-G lenses):

- Sub-command dial – This is the factory default setting. The aperture is set using the Sub-command dial.
- Aperture ring – This setting allows those with older non-G type lenses with a CPU to use the lenses' aperture ring to adjust the aperture instead of using the Sub-command dial. The EV increments will only display in 1 EV steps when this is active.

Here are the screens and steps to change the style of Aperture setting (see Figure 4-78):

1. Continuing from Figure 4-75, image 3, select Aperture setting and then scroll to the right (see Figure 4-78, image 1).

Figure 4-78. Customize command dials (Aperture setting)

2. Select Sub-command dial or Aperture ring from the list (Figure 4-78, image 2).
3. Press the OK button to lock in the setting.

Note: When a non-CPU lens is used, the aperture ring must always be used to set the aperture instead of the Sub-command dial. If you are using a G-type lens with no aperture ring, you clearly can't set the aperture with a non-existent aperture ring, so the camera ignores this setting. Live view mode is *not* available when you change Aperture setting to Aperture ring!

My Recommendation: I leave Aperture setting set to Sub-command dial. I have some older AF Nikkors that I still like using, so I keep them locked at their smallest aperture settings and use the Sub-command dial to change their

apertures. I don't adjust apertures with the old aperture ring on the lens unless I'm using older non-CPU, manual focus AI or AI-S lenses.

Menus and playback

This setting is designed for those who do not like to use the Multi Selector for viewing image Playback or Info screens. It also allows one to use the Command dials for scrolling though menus. There are two selections for how the menus and image playback work when you would rather not use the Multi Selector:

- On – While viewing images during playback, turning the Main command dial to the left or right scrolls through the displayed images. Turning the Sub-command dial left or right scrolls through the data and histogram screens for each image. While viewing menus, turning the Main command dial left or
  right scrolls up or down in the screens. Turning the Sub-command dial left or right scrolls left or right in the menus. The Multi Selector button works normally, even when this is set to On. This setting simply allows you two ways to view your images and menus instead of one.
- Off – This is the default action. The Multi Selector is used to scroll through images and menus.

When using either of these settings, you can press the OK button or the Multi selector center button to make a selection.

Figure 4-79. Customize command dials (Menus and playback)

Here are the screens and steps used to configure Menus and playback:

1. Continuing from Figure 4-75, image 3, select Menus and playback and scroll to the right (see Figure 4-79, image 1).
2. Select On or Off from the list (see Figure 4-79, image 2).
3. Press the OK button to lock in the setting.

My Recommendation: I've heard others talking about how they like this function, and I've recently been using it myself. I like the fact that I can use the Multi Selector or the Command dials to move around in my camera's menus and my images. Try this one out; you may like it too!

Release Button to Use Dial

Custom setting f9 (D300S) and f8 (D300)

(User's Manual – D300S page 298; D300 page 309)

Release button to use dial allows those who hate holding down buttons and turning Command dials at the same time to change to a different method. It would be very useful to a person with limited hand strength, allowing them operate the camera more easily.

There are two settings under this function. Let's examine them and then look at the screens and steps to modify Release button to use dial (see Figure 4-80):

- Yes – This setting changes a two-step operation into a three-step operation. Normally, you will press and hold down a button while rotating a Command dial. When you select Yes under Release button to use dial, the camera allows you to press and release a button, rotate the Command dial, then press and release the button again. The normal (No) actions are press and hold a button and then turn a Command dial. The Yes actions are press and release a
  button, turn Command dial, press and release button. The initial button press locks the button so that you do not have to hold your finger on it while turning the Command dial. Once you have changed whatever you are adjusting, you must press the button a second time to unlock it.

- No – This is the default setting. You must press and hold a button while rotating the Command dials in order to change camera functionality.

If the exposure meter turns off while the Yes operation is active, you must press it again to lock the action.

Here are the screens and steps to configure Release button to use dial (Figure 4-80):

Figure 4-80. Release button to use dial

1. Select f Controls from the Custom Setting Menu and scroll to the right (Figure 4-80, image 1).
2. Highlight Release button to use dial and scroll to the right (Figure 4-80, image 2).
3. Choose Yes or No from the list. In Figure 4-80, image 3, No has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: I haven't found this function useful for myself. However, a person with certain physical disabilities may find this to be a very useful function.

No Memory Card?

Custom setting f10 (D300S) and f9 (D300)

(User's Manual – D300S page 299; D300 page 310)

No memory card? defaults to locking the shutter when you try to take an image without a memory card inserted in the camera. By enabling it you *can* take pictures without a memory card.

The only useful reason I can see for doing so is when you are using Nikon Camera Control Pro software to send pictures directly to your computer (that software is not included with the camera).

Here are the two settings:

- ***LOCK – Release locked –*** If you choose this default setting, your camera will refuse to release the shutter when there is no memory card present.
- ***OK – Enable release –*** Use this setting if you want to use the optional Camera Control Pro 2 software to send images from the camera directly to the computer.

Here are the screens and steps used to configure No memory card? (see Figure 4-81):

Figure 4-81. No memory card?

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-81, image 1).
2. Highlight No memory card? and scroll to the right (see Figure 4-81, image 2).
3. Choose one of the two selections from the list. In Figure 4-81, image 3, Release locked has been selected.
4. Press the OK button to lock in the setting.

My Recommendation: I tried using the Enable release setting as an experiment. I found that there is no real reason to use this setting other than sending pictures to a computer with the Camera Control Pro software. Without a memory card present, I went around the house taking pictures. Using RAW – lossless compression, I was able to take about 40 pictures before I ran out of internal camera buffer memory. The Monitor displayed DEMO on each image I took while the card was out of the camera, and I could scroll around in the pictures normally. Around picture 41 or 42, the camera dumped all the images and went back to number one. So, once it reaches the end of buffer memory, the buffer is cleared.

Okay, well, maybe I can just shoot some images, turn the camera off and then insert a memory card to write the buffer out to the CF card? Nope! As soon as I turned off the camera, it flushed the buffer, and no images were left. Hmm, maybe I can just shoot some images and without turning off the camera, insert a memory card? No, again! Even though I had several images waiting around in buffer memory, as soon as I inserted the card, the camera switched to the inserted card and dumped the buffer again, deleting my lovely buffer images in the process.

I can find no way to write any of the images in the buffer out to a memory card. If you are the curious type, I hope this saves you some time.

Reverse Indicators

Custom setting f11 (D300S) and f10 (D300)

(User's Manual – D300S page 299; D300 page 311)

Reverse indicators lets you change the direction of your camera's exposure displays. Normally, anytime you see the exposure indicators in your camera's Control panel, Viewfinder, or the Information display, the + is on the left, and the - is on the right.

See Figure 4-82, where I show the Information display and the exposure indicator therein.

The first image shows the normal direction.

The second image shows the Information display with the exposure indicators reversed (see red arrows).

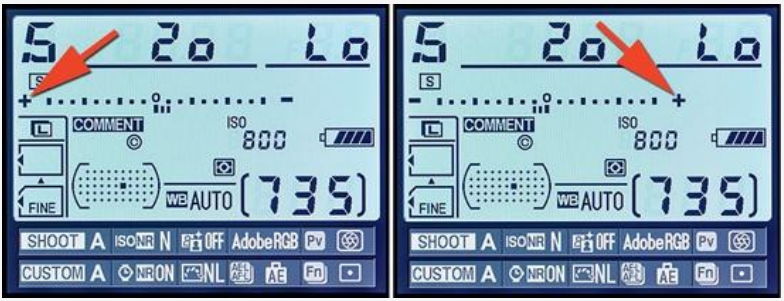


Figure 4-82. Reverse indicators on Information display

Here are the screens and steps to reverse the direction of all camera exposure indicators (see Figure 4-83):

Figure 4-83. Reverse indicators screens

1. Select f Controls from the Custom Setting Menu and scroll to the right (see Figure 4-83, image 1).
2. Highlight Reverse indicators and scroll to the right (see Figure 4-83, image 2).
3. Choose one of the two selections from the list. In Figure 4-83, image 3, the normal exposure indicator direction has been selected. Reverse it with the other selection.
4. Press the OK button to lock in the setting.

My Recommendation: I personally like the exposure indicators with + on the left and − on the right. However, if you are from a part of the world where these things normally run the other direction, or you would just prefer it the other way, it's easy to change. Select your favorite indicator direction for maximum camera comfort!

My Conclusions

Using the Shooting Banks and Custom Banks Together

Now that you have set up and named each of the banks you are interested in using, you are ready to make your camera act like a chameleon (or herd of chameleons). You know how each Shooting menu bank and Custom setting bank is configured. Now you can use them together.

Often, I will use a combination of Shooting menu bank A and Custom setting bank A. But nothing prevents you from using Shooting menu bank B with Custom setting bank D or Shooting menu bank C with Custom setting bank A. Choose whatever combination you'd like to use. That's where the camera's extreme flexibility comes in.

Maybe you have Shooting menu bank A set for best quality JPEGs and are shooting them with Custom setting bank A, which is set for no focus tracking. Suddenly, a flock of geese flies by and you realize you must use focus tracking to accurately capture the one big fat goose you like. You simply press the MENU button, scroll to Custom setting bank B and you are set. (You did configure Custom setting bank B for focus tracking, right?)

Or, maybe while you're using Shooting menu bank A for fine quality JPEGS, an incredibly beautiful rainbow appears. You quickly switch to Shooting menu bank C, where you've previously set lossless RAW mode for maximum quality.

Get the point? Your camera can change the way it shoots on the fly, in much less time than it takes to talk about it. Now that you've read this over and set up a few banks on your camera, give it some serious thought. Think of the ways you most often take pictures, and configure your D300(S) for each of those ways. Your camera will be customized to you!

Passionate Photography

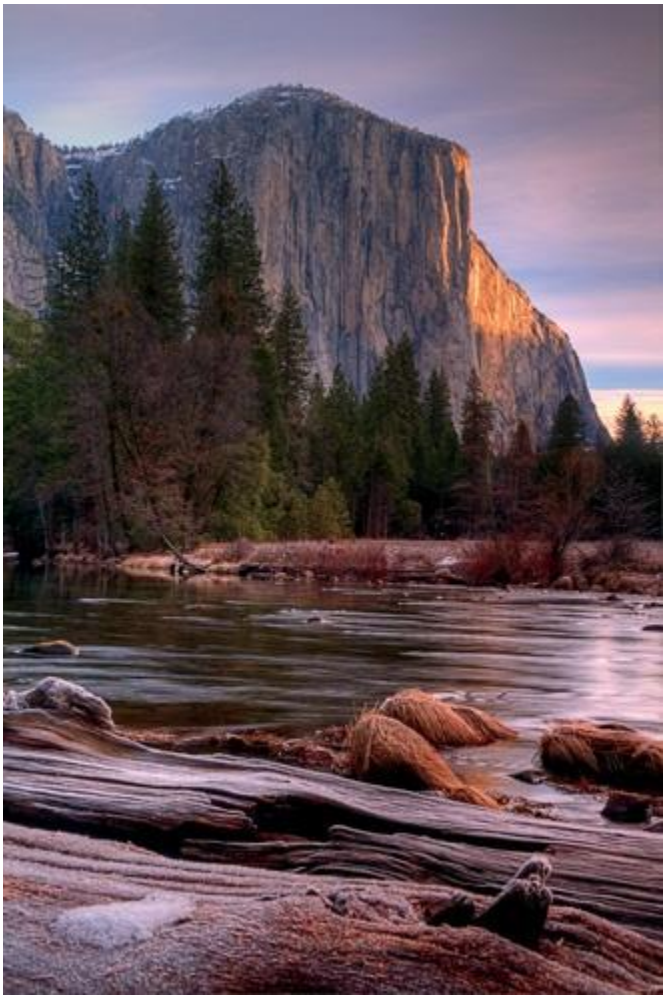
As I've often mentioned, I'm a nature photographer. Figure 4-84 and Figure 4-85 show the style of photography that I most enjoy. In October of each year the Appalachian mountains surrounding me here in Tennessee, USA—and nearby in North Carolina—put on a show that is simply amazing; even moving.

I enjoy talking with readers of my books, and would love to see some of your "passionate" photography. You can email me via the "Contact" link at my business website: **http://www.YoungImaging.com**.

Figure 4-84. Foothills Parkway West, Great Smoky Mountains National Park, Tennessee, USA. Image details: Nikon D300; Sigma 10-20mm f/4-5.6 HSM lens at 10mm; 1/2 second at f/22; Spot metering on distant mountains; Aperture priority exposure mode; ISO Lo 1.0 (100); SD Picture Control

Figure 4-85. Foothills Parkway West, Great Smoky Mountains National Park, Tennessee, USA. Image details: Nikon D300; AI Nikkor 35mm f/2 lens; 1/250 second at f/8; Matrix metering; Aperture priority exposure mode; ISO Lo 1.0 (100); SD Picture Control

Chapter 5. Setup Menu



Dawn on El Capitan – Courtesy of Russ Glindmeier (*russg*)

The Setup Menu on the Nikon D300(S) contains a series of settings for basic camera configuration that are not directly related to taking pictures. They cover things like how bright you'd like the Monitor, battery info, firmware version, the default language, image sensor cleaning, and many other basic settings.

These menus are most likely the first you'll use when you prepare your new D300(S). You'll have to set the time and date right away, format a memory card, and set the Monitor brightness.

The Setup Menu is signified by a symbol that looks like a wrench. It is about midway down the menu tree, on the left side of the Monitor. See Figure 5-1 for a look at the Setup Menu icon location.

Here is a list of all the functions available in the Setup Menu of the D300(S). There are 22 in the D300S, and 20 in the D300:

Figure 5-1. Setup Menu

- **Format memory card –** Allows you to delete all images from your camera's memory card(s) and prepare it for a new picture-taking session.
- **LCD brightness –** Choose the brightness level for the Monitor on the back of your camera.
- **Clean image sensor –** Allows immediate cleaning of the imaging sensor to remove dust spots; or you can configure the camera to clean the sensor at startup and shutdown.
- **Lock mirror up for cleaning –** Lets you safely lock the mirror in the up position and open the shutter so that you can manually clean the sensor with a brush, blower, or chemicals and swabs.
- **Video mode –** Select the Video mode appropriate for your part of the world (NTSC or PAL).
- **HDMI –** Select various HDMI sync rates for interfacing with an HDTV or monitor.
- **Time zone and date (D300S)** or **World time (D300) –** Set the Time zone, Date and time, Date format, and Daylight saving time in your camera.
- **Language –** Choose the Language you would like your camera to use for displaying its menus and screens. Choose from 17 languages in the D300S and 15 in the D300.
- **Image comment –** Add a comment (up to 36 characters) that embeds itself in the internal metadata of each image. This can help you protect yourself from

image theft or simply add pertinent information to each image.

- **Auto image rotation –** Adds camera orientation information to each image so that it will display correctly on your camera's Monitor and later on your computer's monitor.
- **USB (D300 only) –** Allows you to choose between protocol options MTP/PTP or Mass Storage before connecting your D300 to various USB devices. The D300S automatically uses MTP/PTP for USB connections, so this menu item is not available.
- **Image Dust Off ref photo (D300S)** or **Dust Off ref photo (D300) –** Allows you to create a dust-off reference photo to help remove a dust spot from images accidentally taken with some dust on the sensor. This requires the use of a program like Nikon Capture NX2 to actually remove the dust with the reference photo as a guide.
- **Battery info –** Gives you information about the current battery's charge, how many pictures taken with the battery, and the useful life left in the battery before you should dispose of it. It also tells you whether an EN-EL4a or EN-EL4 battery needs "Calibration" when a MB-D10 battery pack is used.
- **Wireless transmitter –** Allows you to adjust the settings for connecting the camera to a wireless network using an optional Nikon WT-4 wireless transmitter.
- **Image authentication –** Allows you to embed Image authentication information that can be read by Nikon's

optional Image Authentication software. This is needed by anyone who wants to ensure that an image has not been modified.

- **Copyright information (D300S only) –** On the D300S only, you can add two items of information including the Artist (34 characters) and Copyright (54 characters). Designed for those using their images commercially, this function allows you to embed specific identity information into the picture's internal metadata.
- **Save/load settings –** Allows you to save the current menu configuration of most internal camera settings to a memory card for transfer to a computer. You can back up complex configurations and restore them to the camera when needed.
- **GPS –** If you own a GPS that can be connected to the Nikon D300(S)—such as the Accessory shoe-mounted Nikon GP-1 or another GPS unit—you can record Latitude, Longitude, Altitude, Heading, and UTC (Coordinated Universal Time) into the metadata of each image.
- **Virtual horizon (D300S only) –** This function displays a virtual horizon on the camera's Monitor. This display shows tilt to the left or right, but not forward or back.
- **Non-CPU lens data –** Lets you select from a series of nine non-CPU lenses, such as AI/AI-S Nikkors from the 1970s and '80s. Each lens is registered within the camera with its own number for later selection at time of use.
- **AF fine tune –**

You can fine-tune the autofocus for up to 12 of your AF/AF-S lenses. Later, the camera will detect which lens you have mounted and correct for front or back focus according to your settings.

- **Eye-Fi upload (D300S only) –** Use an Eye-FI Express or Pro wireless SD card to transmit images from your D300S to your home computer and 25 online services (e.g., Flickr). Or use the Eye-FI X2 Pro cards to transmit images directly to your Wi-Fi enabled computer using AD HOC transfer. When using the D300S only, you'll have menu access to enable or disable uploading, along with connectivity information.
- **Firmware version –** Discover the current Firmware version installed in your camera. "Firmware" is the camera's operating system software embedded on in-camera memory chips. It can be upgraded when Nikon releases new firmware specific to your camera.

Let's examine each of these settings in detail.

Format Memory Card

(User's Manual – D300S page 301; D300 page 313)

Format memory card allows you to prepare your memory cards for use in your new camera. The D300S has two memory card slots, while the D300 has one. Since the cameras have a different number of card slots, the Setup Menu screens are different. The D300S has an extra screen that allows you to select which card you want to format.

If you don't like using the external camera controls to format a memory card, the D300(S) allows you to use the Shooting menu instead. We'll examine both methods.

The D300S has both a CF and SD memory card slot, so you'll have to choose which card you want to format when you use the Setup Menu > Format memory card function. The D300 only has one CF card slot, so you don't have to make any choices about which card to format.

Figure 5-2 (D300S) and Figure 5-3 (D300) show the Format memory card screens.

Figure 5-2. Format memory card screens (D300S)

There are several screens you'll see when formatting a memory card.

Figure 5-3. Format memory card screens (D300)

Here are the steps for formatting a memory card. See Figure 5-2 (D300S) or Figure 5-3 (D300S). The D300S has an extra step:

1. Select Format memory card from the Setup Menu.
2. There's a difference between the two cameras so I'll list the steps for each.
    - **D300S:** On the D300S, you'll see a second screen that asks you to select the card you want to format. You'll have a choice of SD or CF memory card slots. Choose the one you want to format and scroll to the right. You'll need to repeat this action to format the second slot.
    - **D300:** Since the D300 only has one CF card, the middle screen in Figure 5-2 will not show. Instead, you'll see the two screens shown in Figure 5-3. Ignore this step and go directly to # 3.
3. Select Yes from the final screen with the big red exclamation point and the warning that reads *All images or pictures will be deleted. OK?*
4. Press the OK button.

Once you press the OK button, you'll see two screens in quick succession. The first will say *Formatting memory card.* When the card has been successfully formatted, you'll see a final screen that says *Formatting complete.* Then the camera switches back to the Setup Menu's first screen. The card is now formatted, and you can begin taking pictures.

Camera Button Format Method

This is the fastest method to format the memory card, and is a no-brainer for the D300. For the D300S, it is a little more complicated since it only formats the current primary card slot and not the secondary.

You can select the secondary slot instead, as I'll describe in the upcoming step-by-step method. Figure 5-4 shows the buttons and Control panel screens used to format the card. Notice how these two buttons are marked with the red FORMAT symbol. *Make sure that any pictures on the memory card have been saved.* To do the actual formatting process, you'll follow these steps:

1. Hold down the Delete and MODE buttons at the same time (Figure 5-4, images 1 and 2), until For starts flashing on the Control panel (Figure 5-4, image 3, red arrow).

    - **D300S:** While you're still holding down the two buttons and For is flashing, you can rotate the Main command dial with your thumb to select either the SD or CF card slot. It's a three-finger operation, but it's easier than it sounds. You can see in Figure 5-4, image 3 that I've selected the SD card slot for formatting.

Figure 5-4. Camera buttons and Control panel – formatting

- **D300:** Since the D300 only has the one CF card slot, the camera knows what to format, so go directly to step # 2 when For is flashing.

2. Once For is flashing on the Control panel, as shown in Figure 5-4, image 3, quickly release and instantly re-press the Delete and MODE buttons together. You'll see the screen change to the one shown in Figure 5-4, image 4, with For showing where the image count normally shows on the Control panel. When you see this screen, the format operation is in process. Do not turn your camera off during a format. When For disappears and the image count returns, the format operation is done.

My Recommendation: You can repeat the operation for the other slot on the D300S if needed. Both the Setup Menu > Format memory card and the camera button format methods are easy to use.

Most of us learn to use the camera button method since it's so fast. However, I'll sometimes use the Setup Menu > Format memory card method immediately after viewing images on the Monitor for verification of previous transfer to computer.

If it's safe to format the card, I'll just quickly switch to the Setup Menu to format since I'm already looking at the Monitor.

It's a good idea to learn how to use both methods.

LCD Brightness

(User's Manual – D300S page 301; D300 page 313)

LCD brightness is more important than many people realize. If the Monitor is too dim, you'll have trouble seeing your images in bright light. If it is too bright, you might allow some images to be underexposed, thinking that they look fine on the Monitor. Even a seriously underexposed image may look okay on a screen that is too bright.

Figure 5-5. LCD brightness settings

You can select from seven levels of brightness—from -3 to +3—as shown in Figure 5-5. Here are the available values: -3, -2, -1, 0, +1, +2, +3. Use these steps for setup:

1. Once you've selected LCD brightness from the Setup Menu, scroll right and you'll see the screen shown in Figure 5-5, image 2.

2. Use the Multi Selector to scroll up or down through the values listed. Adjust the brightness until you can barely

make out a distinction between the last two dark bars on the left. That may be the best setting for your camera.

3. Decide for yourself what looks best for you, then press the OK button.

My Recommendation: The camera defaults to o (zero), which is right in the middle, yet this setting is quite bright. I feel that o is a little too bright and makes my images look like they are exposed more brightly than when I see them later in the computer. I've been using -1 on my D300S, as that seems bright enough for outdoor use but doesn't make my images appear overly bright.

If you choose to set your camera to a level higher than about o, just be sure that you check the histogram frequently to validate your exposures. Otherwise, you may find that you are allowing the camera to slightly underexpose your images. The D300(S) has one of the best exposure meters I've seen in a camera, yet it is not perfect and needs your help sometimes.

Letting the Monitor run too brightly might mask those times when the camera needs help. If you need extra brightness to see in outdoor light, just be cautious about underexposure.

The bright screen can fool you. Use your histogram!

Clean Image Sensor

(User's Manual – D300S page 358; D300 page 371)

Clean image sensor is Nikon's helpful answer to dust spots on your images that are the result of a dirty imaging sensor.

Dust is everywhere and will eventually get on your camera's sensor. Well, it doesn't really get on the sensor itself, since there are filters in front of the sensor. The D300(S) cleans the sensor by vibrating the entire sensor unit, which includes the low-pass filter in front of the sensor. These high-frequency vibrations will dislodge dust and make it fall off the filter so that you won't see it as spots on your pictures.

I had no serious dust spot problems with my D300, even after shooting for several days on the beach. I once thought I saw a dust spot and used the Lock mirror up for cleaning function (next section) so that I could blow on the sensor with my Giottos Rocket air blower bulb, and the spot was gone. And so far, with my new D300S and eight months of use, I've not seen any dust, period. The vibration method seems to work pretty well. Compared to shooting with my D2X, the D300(S) has far fewer dust issues.

Of course, if any sticky pollen or other wet dust gets into my camera, I'm sure even the vibration system won't be able to remove that. Then it may be time for wet cleaning.

Figure 5-6. Clean now screens

Figure 5-6 and Figure 5-7 show the screens used to automatically clean the camera's sensor:

Clean now – This option allows you to clean the sensor anytime you feel like it. If you detect a dust spot, or just get nervous because you are in a dusty environment with your D300(S), you can simply select Clean now, and the camera will execute a cleaning cycle.

1. Select Clean now from the Setup Menu, as shown in Figure 5-6, image 2, and then scroll to the right, or press the OK button. This starts automatic cleaning.
2. While the cleaning is taking place, you can briefly hear faint squeaking sounds if you hold your ear close to the

camera. A screen will appear that says *Cleaning image sensor*. When the process is complete, another screen will appear that says *Done*. Then the camera switches back to the Setup Menu.

Now, let's look at how we can select an active method for regular sensor cleaning (see Figure 5-7).

Figure 5-7. Clean at startup/shutdown screens

Clean at startup/shutdown – For preventative dust control, many users will set their cameras to clean the sensor at startup, shutdown, or both. There are four selections for startup/shutdown cleaning:

- Clean at startup
- Clean at shutdown
- Clean at startup & shutdown
- Cleaning off

These settings are all self-explanatory. I find it interesting that I don't detect any startup or shutdown delay when using the startup/shutdown cleaning modes. I can turn my camera on and immediately take a picture. The cleaning cycle seems to be very brief when using this mode. Use these steps to choose a Clean at startup/shutdown method (see Figure 5-7):

1. Select Clean image sensor from the Shooting Menu and scroll to the right.
2. Choose Clean at startup/shutdown from the menu shown in Figure 5-7, image 2, and then scroll to the right.
3. Select one of the four methods shown in Figure 5-7, image 3. I chose Clean at startup & shutdown.
4. Press the OK button to lock in your choice.

My Recommendation: Nikon suggests that you hold the camera at the same angle as when you are taking pictures (bottom down) while you use these modes to clean the sensor. I leave my camera set to Clean at startups & shutdown so that it cleans itself each time I start and end a shooting session. If I am in a dusty environment, I'll usually turn my camera off and back on from time to time to cause it to clean the sensor. I rarely use the Clean now method but like knowing it's there when I need it. I suspect that Clean now may initiate a longer cleaning cycle since it seems to take at least two or three seconds. I don't detect a several-second delay when I use a Clean at startup/ shutdown method. I can shoot immediately upon turning on the camera. Of course, taking a picture may just cancel the startup cleaning.

Lock Mirror Up For Cleaning

(User's Manual – D300S page 361; D300 page 374)

Lock mirror up for cleaning is for those times when the high-frequency vibration method of cleaning your D300(S)'s sensor does not dislodge some stickier-than-normal dust. You may have to clean your sensor more aggressively.

In many cases, all that's needed is a dust blower to remove the dust with a puff of air. I remember having to do this with my Nikon D100 in 2002, and I was always afraid I might ruin the shutter if I did it incorrectly. With the D100, I had to hold the shutter open in bulb mode with one hand while I blew off the sensor with the other.

The D300(S) helps out by providing this Lock mirror up for cleaning function so that you can more safely blow a stubborn piece of dust off the low-pass filter. Using this function, you can use both hands since battery power holds the reflex mirror up and the shutter open.

Here are the three screens and steps you'll use to select this mode for manual sensor cleaning:

SETUP MENU
Format memory card
LCD brightness +1
Clean image sensor
Lock mirror up for cleaning
Video mode NTSC
HDMI AUTO
World time
Language En
Lock mirror up for cleaning
Start OK
Lock mirror up for cleaning
When shutter button is pressed, the mirror lifts and shutter opens. To lower mirror, turn camera off.

Figure 5-8. Lock the mirror for cleaning screens

1. Select Lock mirror up for cleaning from the Shooting Menu and scroll to the right.
2. Choose Start, as shown in Figure 5-8, image 2, and then scroll to the right.
3. You'll see a screen that says, *When shutter button is pressed, the mirror lifts and shutter opens. To lower mirror, turn camera off (see* Figure 5-8, image 3).
4. Remove the lens and press the Shutter-release button once. The sensor will now be exposed and ready for cleaning. Be careful not to let new dirt in while the sensor is open to air.
5. Clean the sensor.
6. Turn the camera off and put the lens back on.

Make sure you have a fresh battery in the camera because that's what holds the shutter open for cleaning. It must be above a 60% charge or the camera will refuse to start the process.

You'll need a good professional sensor-cleaning blower. My favorite is the Giottos Rocket-Air blower with its long red tip for easy insertion (see Figure 5-9). I bought mine from the Nikonians Pro Shop (www.PhotoProShop.com). It doesn't cost very much!

My Recommendation:
If even an air blower fails to remove stubborn dust or pollen, you will either have to get your sensor professionally cleaned or do it yourself. Nikon states that you will void your warranty if you touch the low-pass filter. However, many

people still wet- or brush-clean their camera's sensor. I've done it myself, although I'll never admit it! (Oops!)

If all of this makes you nervous, then send your camera off to Nikon for approved cleaning, or use a professional service. Fortunately, a few puffs of air will often remove dust too stubborn for the high-frequency vibration methods. It helps to have the proper tools, such as the Giottos Rocket-Air blower from the Nikonians **PhotoProShop.com** (Figure 5-9).

Video Mode

(User's Manual – D300S page 301; D300 page 314)

If you plan on connecting your D300(S) to a video device, like a standard-definition television (SDTV) or VCR, you'll need to use the correct Video mode for communication with the device.

Your camera has a video out port under the rubber flap on its side (A/V OUT) that allows you to connect with devices that use RCA jacks for input. Nikon included a cable for this connector in your camera's box. It has a mini-stereo plug on one end and yellow and white RCA jacks on the other end. You'll insert the mini-stereo plug into the A/V OUT port on the camera and the RCA jacks into the video device. When you turn the camera on and press the Playback button, the image should be displayed on the video device.

Figure 5-9. Giottos® Rocket-Air blower for sensor cleaning

Make sure that you have the correct Video mode selected for your area of the world.

There are two video modes available in the D300(S): NTSC and PAL.

Figure 5-10. Video mode selections

In Figure 5-10 are the screens and following are the steps used to select a Video mode:

1. Select Video mode from the Shooting Menu and scroll to the right.
2. Choose NTSC or PAL from the menu shown in Figure 5-10, image 2, and then scroll to the right.
3. Press the OK button to choose the standard.

My Recommendation: You'll need to refer to the manual of your television, VCR, or other device to determine what video standard it uses. In the United States and many other areas of the world, the NTSC mode is commonly used. Many European countries use PAL. It won't blow up the device or camera if you use the wrong mode. If one doesn't work, try the other.

HDMI

(User's Manual – D300S page 302; D300 page 315)

HDMI (High-Definition Multimedia Interface) allows you to display your images and video (D300S only) on a high-definition monitor or television (HDTV). The camera's Monitor shuts off when you are connected to an HD device.

You'll need an HDMI Type A to Type C cable, which is not included with the camera but is available from many electronics stores. This cable is also known as a mini HDMI to HDMI A/V HD cable. Figure 5-11 gives you a closer look at both ends of the cable.

Figure 5-11. Mini HDMI to HDMI

The smaller end (mini HDMI, Type C) goes into the HDMI port under the rubber flap on your camera, and the other end (HDMI, Type A) plugs into your HD device.

Figure 5-12. HDMI screens

Before you connect the camera to your HDMI display, you'll need to set one of these HDMI formats:

- Auto (default) – This allows the camera to select the most appropriate format for displaying your image on the currently connected device.
- 480p (progressive) – 640 × 480 progressive format.
- 576p (progressive) – 720 × 576 progressive format.
- 720p (progressive) – 1280 × 720 progressive format.
- 1080i (interlaced) – 1920 × 1080 interlaced format.

These modes will be discussed in more detail in the chapter titled **Chapter 8**. Here we will only look at how to select them (see Figure 5-12):

1. Select HDMI from the Shooting Menu and scroll to the right.
2. Choose one of the five modes from the menu shown in Figure 5-12, image 2, and then scroll to the right.
3. Press the OK button to lock in your choice.

My Recommendation: Leave the HDMI mode set to Auto until you learn more about HDMI. The D300(S) can interface with both progressive and interlaced devices. The HDMI display will take the place of the Monitor on the back of your D300(S). The camera monitor will turn off as soon as you connect an HDMI device.

Time Zone and Date or World Time

(User's Manual – D300S page 302; D300 page 316)

Time zone and date (D300S) or World time (D300) allows you to configure the Time zone, Date and time, Date format, and Daylight saving time for your camera.

If you haven't set the time and date you'll see the word *CLOCK* flashing on the Control panel. In addition to the main Li-ion battery pack, the camera has a built-in clock battery that is not user-replaceable. The built-in battery charges itself from the main camera battery pack. *CLOCK* blinking in the Control panel can also mean that the internal battery has become exhausted and the clock has been reset.

It takes about two days of having a charged battery in the camera to fully charge the separate built-in clock battery. Once the clock battery is fully charged, the clock will remain active without a main camera battery for up to two months.

There are several functions to set under the Time zone and date (D300S) or World time (D300) section of the Setup Menu. Figure 5-13 shows the two slightly different Setup Menu screens, one for the D300S and the other for the D300. After this initial textual difference, both cameras have almost identical time and date screens, which include the following functions:

- Time zone
- Date and time
- Date format

- Daylight saving time

Figure 5-13. D300S and D300 Time zone and date screens

Time zone – Figure 5-14 shows the Time zone configuration screens, as a continuation of Figure 5-13.

The screen used to set the time zone displays a familiar world map from which you will select the area of the world where you are using the camera.

Here are the steps used to set the Time zone (see Figure 5-14):

1. Choose Time zone from the Time zone and date screen and scroll to the right (see Figure 5-14, image 1).

Figure 5-14. Time zone screens

2. To set the Time zone, use the Multi Selector to scroll left or right until your time zone is under the yellow vertical bar in the center or is marked with a small red dot.
3. Press the OK button to lock in the Time zone.

Date and time – Figure 5-15 shows the two Date and time configuration screens, as a continuation of Figure 5-13. The final screen in the series allows you to select the Year, Month, and Day (Y, M, D), and the Hour, Minute, and Second (H, M, S).

Here are the steps used to set the Date and time (see Figure 5-15):

1. Choose Date and time from the Time zone and date screen and scroll to the right (see Figure 5-15, image 1).
2. Using the Multi Selector, scroll left or right until you've selected the value you want to change. Then scroll up or down to actually change the value. The top line shown in Figure 5-15, image 2, includes the Year, Month, and Day (Y, M, D). The second line includes the Hour, Minute, and Second (H, M, S).

Figure 5-15. Date and time screens

3. Press the OK button to lock in the Date and time.

Please note that the time setting uses the 24-hour military-style clock. To set 3 p.m., you would set the H and M settings to 15:00. See the upcoming **12- to 24-Hour Time Conversion Chart** for your convenience.

Table 5-1. 12- to 24-Hour Time Conversion Chart

A.M. Settings:	
12:00 a.m. = 00:00 (midnight)	06:00 a.m. = 06:00
01:00 a.m. = 01:00	07:00 a.m. = 07:00
02:00 a.m. = 02:00	08:00 a.m. = 08:00
03:00 a.m. = 03:00	09:00 a.m. = 09:00
04:00 a.m. = 04:00	10:00 a.m. = 10:00

05:00 a.m. = 05:00	11:00 a.m. = 11:00
P.M. Settings:	
12:00 p.m. = 12:00 (noon)	06:00 p.m. = 18:00
01:00 p.m. = 13:00	07:00 p.m. = 19:00
02:00 p.m. = 14:00	08:00 p.m. = 20:00
03:00 p.m. = 15:00	09:00 p.m. = 21:00
04:00 p.m. = 16:00	10:00 p.m. = 22:00
05:00 p.m. = 17:00	11:00 p.m. = 23:00
Note: There is no 24:00 time (midnight). After 23:59 comes 00:00.	

Date format – The camera gives you three different ways to format the date (see Figure 5-16):

▪ Y/M/D – Year/Month/Day	(2010/12/31)
▪ M/D/Y – Month/Day/Year	(12/31/2010)
▪ D/M/Y – Day/Month/Year	(31/12/2010)

United States camera owners will probably use the second setting, which matches the Month/Day/ Year format so

familiar to Americans. Other areas of the world can select their favorite date format.

Figure 5-16. Date format screens

Here are the steps to set the Date format (see Figure 5-16; continues from Figure 5-13):

1. Choose Date format from the Time zone and date screen and scroll to the right (see Figure 5-16, image 1).
2. Choose your favorite Date format from the list. I have my camera set to M/D/Y – Month/Day/Year.
3. Press the OK button to lock in the Date format.

Daylight saving time – Many areas of the United States observe Daylight saving time. In the spring, many American residents set their clocks forward by one hour on a specified day each year. Then in the fall they set them back, leading to the clever saying, "spring forward, fall back". Figure 5-17 continues from one of the screens in Figure 5-13.

Figure 5-17. Daylight saving time screens

1. Choose Daylight saving time from the Time zone and date screen and scroll to the right (see Figure 5-17, image 1).
2. Figure 5-17, image 2, shows you the two choices for Daylight saving time: On or Off. If you select On your camera will automatically "spring forward" and "fall back", adjusting your time forward by one hour in the spring and back one hour in the fall. If you select Off you'll have to change the clock manually.
3. Press the OK button to lock in the setting.

Language

(User's Manual – D300S page 303; D300 page 316)

Nikon is a company that sells cameras and lenses around the world. For that reason, the D300S can display its screens and menus in up to 17 languages, and the D300 has 15.

The camera includes the following languages on its Setup Menu > Language screen:

- Danish (D300S only)
- German
- English
- Spanish
- Finnish
- French
- Italian
- Dutch
- Norwegian (D300S only)
- Polish
- Portuguese
- Russian
- Swedish
- Traditional Chinese

- Simplified Chinese
- Japanese
- Korean

Here are the screens and steps used to select your preferred Language (Figure 5-18):

1. Select Language from the Setup Menu and scroll to the right.

Figure 5-18. Selecting a language for your camera

2. Choose your preferred Language from the list shown in Figure 5-18, image 2.
3. Press the OK button to lock in your choice.

My Recommendation: The camera should come pre-configured for the main language spoken where you live. If you prefer a different one, use this setting to select it.

Image Comment

(User's Manual – D300S page 303; D300 page 317)

Image comment is a useful setting that allows you to attach a 36-character comment to each image you shoot. The comment is embedded in the picture's internal metadata and does not show up on the image itself. I attach the words "Copyright Darrell Young" to my images.

Unfortunately, Nikon does not include the copyright symbol © in the list of numbers and letters, or I would include that in my comment.

Here are the screens and steps to create an Image comment (see Figure 5-19):

Figure 5-19. Image comment selection screens

1. Select Image comment from the Setup Menu.

2. Select Input comment from the Image comment screen and scroll to the right with the Multi Selector (see Figure 5-19, image 2).

3. In Figure 5-19, image 3, you'll see a series of symbols, numbers, and letters on top and a rectangle with tiny lines at the bottom. The little lines are where we will put our text to attach a comment. In the upper-left corner of the characters area is a blank spot, which represents a blank for insertion in the line of text. This is good for separating words. If you scroll down past the upper case letters, you'll find some lowercase letters too.

4. Use the Multi Selector to scroll through the numbers and letters to find the characters you want to use. Scroll down for lowercase letters.

5. Press the Multi selector center button (D300S) or center of the Multi Selector (D300) to select a character. Keep selecting new characters until you have the entire new name in place. I added "Copyright Darrell Young" to my camera's Image comment field. The maximum number of characters you can enter is 36.

6. If you make a mistake, hold down the checkered Thumbnail/playback zoom out button while using the Multi Selector to move to the position of the error. Push the garbage can Delete button on the top left of the camera and the bad character will disappear.

7. Press the OK button when you are finished entering the comment.

8. The camera will switch back to the screen shown in Figure 5-19, image 4. You'll need to put a small check

mark in the Attach comment check box so that the comment will attach itself to each image. Highlight the Attach comment line and scroll to the right or press the OK button to Set the check mark in the box. You'll see a check mark appear as soon as you scroll to the right, as shown in Figure 5-19, image 5.

9. Scroll up to Done and press the OK button to save the new comment (see Figure 5-19, image 6).

My Recommendation: You can use this comment field for any text you want to add to the internal metadata of the image. There is another Setup Menu selection called Copyright information in the D300S only that allows you to add your personal copyright. We'll consider this function later in the chapter. The D300 does not have the Copyright information selection, so Image comment is a good place to enter a copyright notice for that camera. Remember, you are limited to 36 characters in the comment.

Auto Image Rotation

(User's Manual – D300S page 304; D300 page 318)

Auto image rotation is concerned with how a vertical image is displayed on your camera's Monitor and later on your computer. Horizontal images are not affected by this setting. The camera has a direction-sensing device so that it knows how a picture is oriented

Depending on how you have Auto image rotation set, and how you hold your camera's hand grip, the camera will display a vertical image either as an upright portrait image, with the top of the image at the top of the LCD screen, or lying on its side in a horizontal direction, with the top to the left or right. The two selections are as follows:

- ***On*** **–** With Auto image rotation turned On, the camera stores orientation information within each image, primarily so that the image will display correctly in computer software such as Nikon Capture NX and ViewNX. In other words, the camera records, as part of the image's metadata, whether you were holding your camera horizontally or vertically (hand grip down) or even upside-down vertically (hand grip up). The image will display in the correct orientation on your camera's Monitor only if you have Playback Menu > Rotate tall set to On. Auto image rotation lets the image speak for itself as to orientation, while Rotate tall lets the camera listen to the image and display it in the proper orientation.

- ***Off*** – If Auto image rotation is turned Off, the vertical image will be displayed as a horizontal image lying on its side in your computer software. The top of the image will be on the left or right according to how you held the hand grip—up or down—when you took the picture. The camera does not record orientation information with the image. It will display as a horizontal image, even if you have set the Playback Menu > Rotate tall function set to On.

Here are the screens and steps used to set the Auto image rotation function (see Figure 5-20):

Figure 5-20. Auto image rotation

1. Select Auto image rotation from the Setup Menu and scroll to the right.
2. Choose On or Off and press the OK button to lock in your selection.

If you're shooting in Continuous frame advance mode (CL or CH), the position in which you hold your camera for the first shot sets the direction the images are displayed.

My Recommendation: If you want your images to be displayed correctly on your camera's Monitor and in your computer, you'll need to be sure that Auto image rotation is set to On. I always keep mine set that way.

USB (D300 only)

(User's Manual – D300 page 319)

Nikon provides D300 users with two separate USB protocols, namely MTP/PTP and Mass Storage. Let's examine the two selections:

- ***Mass Storage*** – The first protocol is Mass Storage (MSC), which makes your D300 act like a portable hard drive when attached to your computer with a USB cable. It will show up as a drive letter in your computer's hard drive browser (Windows Explorer, etc.).

Figure 5-21. D300 (only) camera menus for USB protocols

- ***MTP/PTP*** – Media Transfer Protocol (MTP) is a set of custom extensions to Picture Transfer Protocol (PTP), so they are included together. PTP was designed for transferring pictures from digital cameras. MTP was created mainly for transferring music and video files. MTP/PTP is the default setting.

Here are the steps to choose your preferred setting for USB (see the screens in Figure 5-21):

1. Choose USB from the Setup Menu and scroll to the right.
2. Select MSC – Mass Storage or MTP/PTP from the USB menu (see Figure 5-21, image 2).
3. Press the OK button to lock in the setting.

Now, let's examine some of the information you'll need to successfully navigate the USB connectivity world with your Nikon D300.

Operating systems – When transferring images directly from your camera to a computer using Microsoft Windows XP, Vista, or Windows 7, you can choose either protocol. The same applies to Mac OS X versions 10.3.9 and above. If you are using Microsoft Windows 2000, you should choose Mass Storage.

MTP is part of the Windows Media Framework, so if you are using Windows XP, you will need Windows Media Player 10.x or higher installed on your computer. Vista and Windows 7 have built-in support. Mac and Linux have software to support it too.

The default USB setting is MTP/PTP. Try connecting your camera to your computer to see which you prefer. I always play it safe by never connecting my camera to the computer when the camera is turned on. I know that USB should allow us to connect/ disconnect at will, but I will not endanger my camera by doing so, especially if using the Mass Storage protocol (D300 only). How wise do you think it is to unplug a

live hard drive, which is what your camera effectively becomes when using Mass Storage
protocol? The real solution is to transfer your images via a card reader. They are faster in many cases too.

If you do use a USB cable, please turn your camera on only after you connect it to the computer, and turn it off before disconnecting. It would be a shame to blow out the electronics on an expensive camera like the D300 over a static electricity spark.

Windows 2000 (specifically) – Do not use MTP/PTP with Windows 2000; use Mass Storage only. Your camera or computer won't explode if you plug it in with MTP/PTP, but Windows 2000 will often start up the New Hardware Wizard as if you are trying to install a piece of hardware. If that happens, just exit the wizard and switch your camera to Mass Storage protocol.

Camera Control Pro software – If you connect your D300 to your computer when running Camera Control Pro 2.x or greater, it is important that you use MTP/PTP only. Camera Control Pro does not support Mass Storage, since you are controlling your camera with the computer. That requires more than acting like a hard drive, which is what Mass Storage protocol makes your D300(S) appear to be to your computer.

Pictbridge printer or WT-4 wireless transmitter – Use MTP/PTP protocol only.

My Recommendation: Which should I use? Well, it depends on your usage and computer type. Both USB protocols will successfully transfer images from your camera to a computer. Mass Storage or MSC causes your camera to

appear with a drive letter, like a hard drive, in a Microsoft Windows computer. MTP/PTP causes the camera to appear as a "device" instead of a hard drive letter assignment. I choose MTP/PTP for my D300 because it appears as a little camera device in my computer's file browser. That's a lot easier to find!

> What about the D300S and USB?
>
> The D300S has no USB menu selection. It appears that the D300S defaults to MTP/PTP, which is required by virtually all Nikon software. I know that it always appears as a device, not a hard drive, under my file browser. Basically, the D300S simply gives you no choice of USB protocols, where the older D300 does.

Image Dust Off Ref Photo

(User's Manual – D300S page 305; D300 page 319)

Often, you may go out and do an expensive shoot only to return and find that some dust spots have appeared in the worst possible place in your images. If you immediately create an Image Dust Off ref photo, you can use it to remove the dust spots from your images and afterward go clean the camera's sensor for your next shooting session.

Nikon calls this function Image Dust Off ref photo in the D300S and Dust Off ref photo in the D300. We'll use Image Dust off ref photo for all references in this section. Here's how it works.

When you use the instructions below to create the Image Dust Off ref photo, you'll be shooting a blank, unfocused picture of a pure white or gray background. The dust spots in the image will then be readily apparent to Nikon Capture NX2 software. Yes, you must use Nikon's software to automatically batch-remove dust spots from a large number of images.

When you load the image to be cleaned into Capture NX2, along with the dust-off image, the software will use that image to remove the spots in your production image.

The position and amount of dust on the low-pass filter may change. It is recommended that you take Image Dust Off ref photos regularly and use one that was taken within one day of the photographs you wish to clean up.

Finding a Subject for the Dust-Off Reference Photo

First, we need to select a featureless subject to make a photograph for the Image Dust Off ref photo. The key here is to use a material that has no graininess, such as bright-white, slick plastic or a white card. I tried using plain white sheets of paper held up to a bright window, but the resulting reference photo was unsatisfactory to Capture NX2. It gave me a message that my reference photo was too dusty when I tried to use it.

After some experimentation, I finally settled on three different subjects that seem to work well:

- A slide-viewing light table with the light turned on
- A computer monitor screen with a blank white word processor document
- A plain white card in the same bright light in which your subject resides

All of these provided enough light and featurelessness to satisfy both my camera and Capture NX2. The key is to photograph something fairly bright, but not too bright. You may need to experiment with different subjects if you have no light table or computer.

Now, let's prepare the camera for the actual reference photo. Here are the screens and steps you'll use to create an Image Dust Off ref photo (see Figure 5-22):

SETUP MENU
Image comment ON
Auto image rotation ON
Image Dust Off ref photo --
Battery info --
Wireless transmitter --
Image authentication OFF
Copyright information ON
Save/load settings --
Image Dust Off ref photo
Start OK
Clean sensor and then start
Image Dust Off ref photo
Take photo of bright featureless white object 10 cm from lens. Focus will be set to infinity.

Figure 5-22. Image Dust Off ref photo screens

1. Select Image Dust Off ref photo (D300S) or Dust Off ref photo (D300) from the Setup Menu and scroll to the right. There is also a Clean sensor and then start selection. However, since I want to remove dust on current pictures, I won't use this setting. It might remove the dust bunny that is imprinted on the last 500 images I just shot! I'll clean my sensor after I get a good Image Dust Off ref photo.

2. Choose Start and press the OK button. After you've selected Start and OK, you'll see the word rEF in the Viewfinder and on the Control panel. This simply means that we are ready to create the image.

3. Once the camera is ready, hold the lens about 4 inches (10 cm) away from the blank subject. The camera will not try to autofocus during the process, which is good because you want the lens at infinity anyway. We are not trying to take a viewable picture; we're just creating an image that shows where the dust is on the sensor. Focus is not important, and neither is minor camera shake. If you try to take the picture and the subject is not bright enough, or if it's too bright, you will see the screen shown in Figure 5-23. If you are having problems with

too much brightness, use a gray surface instead of white. Most of the time this error is caused by insufficient light.

Figure 5-23. Incorrect exposure

4. If you don't see the screen in Figure 5-23, and the shutter fires, you have successfully created an Image Dust Off ref photo. You will find the image shown in Figure 5-24 on your camera's Monitor. A 2-megabyte file is created on your camera's memory card with an ending of .NDF instead of the normal .NEF, .TIF, or .JPG. This NDF file is basically a small database of the millions of clean pixels in your imaging sensor and a few dirty ones. (Example filename: DSC_1234.NDF.)

Figure 5-24. Dust Off ref photo

You cannot display the Image Dust Off ref photo on your computer. It will not open in Capture NX2 or any other graphics program that I tried. It is only used as a reference by Capture NX2 when it's time to clean images.

Where to Store the Reference Photo – Copy the .NDF file from your camera's memory card to the computer folder containing the images that have dust spots on them and for which you created this Image Dust Off ref photo. You can now use Nikon Capture NX2 to remove the dust spot from all the images covered by this Image Dust Off ref photo.
That process is beyond the scope of this book, but there are many good Nikon Capture NX2 books on the market that will explain it well.

White or Gray Card Tips – Remember, all your camera needs to create an Image Dust Off ref photo is a good bright look at its imaging sensor so that it can map the dirt spots into a .NDF file (ref photo file).

If you hold your camera too far away from the white surface you are photographing, you will get a warning that says, *The selected Dust Off reference photo contains too much dust and could cause image details to be lost. Do you want to use it anyway?*

When your lens is a distance away from the surface, you might actually be photographing small dirt on the surface of your white subject. Those spots can mix in with the dust seen on the sensor and make an inaccurate Image Dust Off ref photo. Later, when you use it to remove dust from an image, it removes the dust found on the sensor as well as all the other spots that were on the white surface. Those extra spots were not really on the image, so Capture NX2 will be removing spots it shouldn't. The image quality may go down from all the unnecessary re-interpolation.

If you get the warning screen shown in Figure 5-23 that says, *Exposure settings are not appropriate. Change exposure settings and try again,* just go shoot another Image Dust Off ref photo with a nice bright, clean, white surface. Put the lens very close to the surface, and make sure it is not in focus. You might even want to manually set the lens to infinity if you are having problems with this often.

Once you've found your favorite white or gray surface for Image Dust Off ref photos, keep it safe and use it consistently.

Battery Info

(User's Manual – D300S page 307; D300 page 322)

The Battery info screens, as seen in Figure 5-25, will let you know how much battery voltage charge has been used (Bat. meter), how many images have been taken with this battery since the last charge (Pic. meter), and how much life the battery has before it will no longer hold a good charge (Battery age in D300S, and Charging life in D300).

Here are the screens and steps used to examine Battery info (see Figure 5-25):

Figure 5-25. Battery info screens

1. Select Battery info from the Setup Menu and scroll to the right.
2. The second and third screens shown in Figure 5-25 correspond to the D300S and D300, respectively. They basically do the same thing, with a textual difference (see red arrows) in the Battery age/Charging life section. If you have a D300S, you'll see image 2, and with a D300 you'll see image 3.

This Battery info screen is just for information so there's nothing to set. When you've finished examining your camera's Battery info, just press the OK button to exit.

The D300(S) goes a step farther than most cameras. Not only does it keep you informed of the amount of "charge" left in your battery, it also lets you know how much "life" is left. After some time, all batteries weaken and won't hold a full charge. The Battery age/Charging life meter will tell you when the battery needs to be completely replaced. It shows five stages of battery life, from 0–4, so that you'll be prepared for replacement before your battery gets too old to be of many-shot use.

My Recommendation: In my opinion, it's important to use Nikon brand batteries in your D300(S) so that they will work properly with the camera. Aftermarket batteries may not charge correctly in the D300(S) battery charger. In addition, they may not report correct Battery age/Charging life information.

There may be an aftermarket brand that works correctly, but I've not found it personally. Instead, I choose to use the batteries designed by Nikon to work with this camera. I am a bit afraid to trust a camera that costs this much to a cheap aftermarket battery of unknown origin. In Figure 5-26 you'll see a picture of the top and bottom of a genuine, gray-colored Li-ion Nikon EN-EL3e battery. See the 3D Nikon hologram on the top right of image 2?

Figure 5-26. Picture of a genuine EN-EL3e battery

Using an MB-D10 Battery Pack

If you are using the MB-D10 battery pack with an EN-EL4a battery or the EN-EL4 battery pack (not EN-EL3e), the Battery info screen will also show calibration information. Calibration is optional, but it could be required after many charge/discharge cycles so that the Battery info screen will present accurate information.

The battery charger (MH-18A) for the Nikon D300(S) does not have a calibration feature, so many D300(S) users will have little knowledge of it. The battery charger (MH-21 and MH-22) for the EN-EL4 and EN-EL4a battery does have calibration. If you also use a Nikon D2- or D3-level camera, you will be familiar with it.

The Battery info screen will change the amount of information it displays to a significant degree according to whether you have an MB-D10 battery pack mounted and what type of batteries are being used in the pack.

Wireless Transmitter

(User's Manual – D300S page 227; D300 page 229)

This menu system is concerned with having the WT-4 wireless transmitter attached to the D300(S). Using the WT-4, you can send images wirelessly to a computer or printer. You can also use Nikon's Camera Control 2.x software to control the D300(S) remotely.

Here are the four modes found in the D300(S) with a WT-4 attached:

- ***Transfer mode –*** Using this mode, you can upload new or existing images to a computer or even to a File Transfer Protocol (FTP) server.
- ***Thumbnail select mode –*** This allows someone to preview images you are shooting on a remote computer. If they like the image(s), they can upload just the one(s) they like to the computer. Sports shooters love this!
- ***PC mode –*** This might have been called "Studio Mode" instead. It allows a studio artist to control their D300(S) from a computer using the Nikon Camera Control Pro 2.x software.
- ***Print mode –*** This allows someone shooting near a network to have the images printed on a printer connected to one of the network computers.

Be sure that you select the camera's MTP/PTP USB mode (see USB (D300 only) section) before attaching a WT-4

transmitter to a D300. The D300S automatically works correctly with the WT-4.

This book won't cover the use of the WT-4 transmitter in any more detail since the transmitter has its own comprehensive feature set and manual and this book is about the Nikon D300(S).

Low-Cost Wireless Image Transmission for Your D300S

If you need to wirelessly transmit images from your camera to your computer but cannot afford the expensive WT-4 transmitter, please read the upcoming section on Eye-Fi card upload for your D300S. These cards allow limited-range wireless transmission of images (50 to 90 feet) between your camera and a Wi-Fi network access point. If you use the new Eye-Fi 8GB X2 Pro SD/SDHC card, you can even do direct-to-computer "ad hoc" wireless transmission of images. At the time of this book's writing, there are Eye-Fi cards that range from 2 to 8 gigabytes capacity. I understand that these cards can also be used successfully in a CF/SDHC adapter for use in cameras such as the D300. However, Eye-Fi does not recommend this, due to a loss of range and other issues, which we will discuss later.

Image Authentication

(User's Manual – D300S page 308; D300 page 324)

Image authentication is a method used in conjunction with Nikon software to guarantee that an image has not been modified in any way.

With film, one can easily detect whether a printed image has been modified from the original. All one must do is look at the original transparency or negative. However, with digital photography and programs like Photoshop, one can modify an image in amazing ways.

Many law enforcement agencies would like to use digital imaging to save lots of money on film and processing costs but have been hampered by this ability to modify digital images so easily. Some courts have refused digital images as evidence for this reason.

Some major editorial houses, like large newspapers and magazines, have been embarrassed when one of their photographers modified a news image and was later caught.

Clearly there is a need to prove that a digital image has not been modified from its original form. Nikon has answered that need with the Image authentication feature of the Nikon D300(S) and other DSLR cameras. Working in conjunction with Nikon's Image Authentication software, the D300(S) can stamp images with an electronic "seal" that allows an agency to prove that an image printed from the camera has not been modified, or if so, where.

Figure 5-27 shows a D300 Playback screen with the Image authentication stamp icon. This merely shows that an image has been shot with Image authentication enabled. It takes the Nikon software to prove whether or not it has been modified.

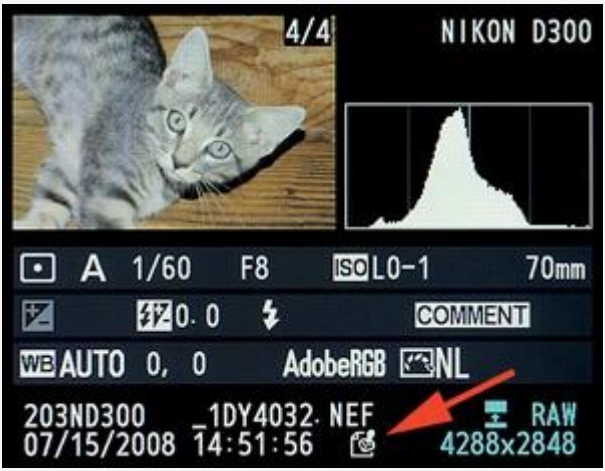


Figure 5-27. Playback screen with authentication stamp

There are two settings in the Image authentication function, as shown in Figure 5-28:

- On – Image authentication information, which can be used by Nikon's Image Authentication software, is imbedded in the image. With this feature turned on, and with the used of Nikon software, you can prove that a certain image has not been modified.
- Off – No Image authentication embedding takes place. This is the default setting.

Here are the steps and screens used to configure Image authentication (see Figure 5-28):

Figure 5-28. Image authentication screens

1. **Select** Image authentication **from the** Setup Menu **and scroll to the right.**
2. **Select** On **or** Off **from the** Image authentication **screen (Figure 5-28, image 2)**.
3. **Press the** OK button **to lock in your choice**.
4. **Take a picture and check the** Playback screen **to see if the authentication seal is showing (see Figure 5-27).**

My Recommendation: After a little thought, I decided to set my camera's Image authentication to On. I figure that one day I'll be sitting in the car waiting for the wife at the local superstore, and a very important news event will occur right next to my car. I won't even have to get out of the car! In order to get my Pulitzer Prize, I'll want to be able to prove later that the images I took have not been modified in any way. I'll have to buy the Nikon Image Authentication software to prove it, but with the money I'll make from these images, it'll be worth it. If you work for a law-enforcement agency or cover wars and presidential elections—or news of

various sorts—turn this on immediately. Later you can prove that you have not modified the image.

Copyright Information (D300S Only)

(User's Manual – D300S page 309)

Figure 5-29. Artist and Copyright information screens

Copyright information is only available in the D300S. It allows you to embed Artist and Copyright data into each image. Use Shooting Menu > Image comment for the D300 since it has no Copyright information setting.

Refer to Figure 5-29 and use the following steps to add personal information to your camera. It will then write your

Artist name and Copyright information into the metadata of the image (see Figure 5-29).

1. Select Copyright information from the Setup Menu and scroll to the right. You'll see the Copyright information screen with Done highlighted (see Figure 5-29, images 1 and 2).
2. Scroll down to Artist and scroll to the right (Figure 5-29, image 3).
3. You'll now see the Artist screen with all the available characters (Figure 5-29, image 4). Add your name here, with a maximum of 36 characters. Use the Multi Selector to scroll around within the characters. Lowercase characters are found by scrolling down. Select a character by pressing the Multi selector center button in the D300S or the center of the Multi Selector in the D300. You correct errors within the text you've already entered by holding down the Thumbnail/playback zoom out button and scrolling left or right with the Multi Selector. Remove a character already in the name area by scrolling to it and pressing the Delete button (garbage can). Press the OK button when you have entered your name. Refer to the **Camera Body Reference** section at the beginning of this book to find button locations for your specific camera.
4. Now scroll down to the Copyright line on the Copyright information screen, and then scroll to the right (Figure 5-29, image 5).
5. Add your name here using the same controls as described in step # 3 (Figure 5-29, image 6).

6. Scroll down to the Attach copyright information line (Figure 5-29, image 7). Notice that there is currently no check mark in the little box (see red arrow in Figure 5-29, image 7). Now scroll to the right toward Set, and you'll see a tiny check mark appear in the box (Figure 5-29, image 8).

7. Finally, scroll back up to Done on the Copyright information screen. Press the OK button to save your Artist and Copyright information.

My Recommendation: D300S users, be sure to add your name in both the Artist and Copyright sections of this function. With so much intellectual property theft going on these days, it's a good idea to identify each of your images as your own. Otherwise, you may post an image on Flickr or Facebook to share with friends and later find it on a billboard along the highway. At least this way, you will be able to prove that the image is yours and charge the infringer.

Embedding your personal information is not a foolproof way to ID your images since unscrupulous people may steal them and strip the metadata out of them.

However, if you do find one of your images on the front page of a magazine, or on someone else's website, at least you can prove you took the image and have some legal recourse under the Digital Millennium Copyright Act (DMCA). Once you've taken a picture, you hold the copyright to that image. You must be able to prove you took it. This is one convenient way.

D300 users should add similar information under the Image comment function mentioned earlier.

Save/Load Settings

(User's Manual – D300S page 310; D300 page 325)

Do you have your D300(S) set up exactly the way you like it? Have you spent hours and hours with this book and the user's manual, or simply exploring menus, and finally got all the settings in place? Are you worried that you might accidentally do a reset of your camera or that it could lose its settings in one way or another? Well, worry no more!

Once you have your camera configured to your liking, or at any time during the process, simply use the Save/load settings function to save the camera configuration out to your memory card. It creates a tiny 2K file named NCSETUP5.BIN (D300S) or NCSETUP1.BIN (D300) in the root directory of your memory card. You can then save that file to your computer's hard drive and keep a backup of camera settings.

Here are the screens and steps to save or load the camera's settings (see Figure 5-30):

1. Choose Save/load settings from the Setup Menu and scroll to the right.

Figure 5-30. Save/Load settings screens

2. Select Save settings or Load settings from the Save/load settings screen, and then follow one of these two easy procedures:

    - ***Save settings –*** Select Save settings and press the OK button. Your most important camera settings will be saved to your memory card. Copy the settings file (NCSETUPN.BIN) to your computer for safekeeping.

    - ***Load settings –*** Insert a memory card with a previously saved NCSETUPN.BIN file on it, select Load Settings, and press the OK button. The settings you previously saved will be reloaded into the D300(S).

Here is a list of settings saved or loaded when you make use of these functions. It doesn't save or load every last setting in the D300(S), only the ones listed here:

- ***Playback Menu***
    - Display mode
    - Image review
    - After delete
    - Rotate tall
- ***Shooting Menus –*** This saves the settings in all four banks (A, B, C, D)
    - Shooting menu bank

- File naming
- Image quality
- Image size
- JPEG compression
- NEF (RAW) recording
- White balance (includes fine-tuning adjustments and presets d-0 to d-4)
- Set picture control
- Color space
- Active D-Lighting
- Long exp. NR
- High ISO NR
- ISO sensitivity settings
- Live view mode
- Movie settings (D300S only)

▪ ***Custom Settings*** – This saves the settings in all four banks (A, B, C, D)

- Custom Settings (includes all configurable settings)

▪ ***Setup Menu***

- Clean image sensor
- Video mode
- HDMI

- Time zone and date (D300S) or World time (D300)
- Language
- Image comment
- Auto image rotation
- Image authentication
- Copyright information (D300S only)
- GPS settings
- USB mode (D300 only)
- Non-CPU lens data

▪ ***My Menu*** (D300S and D300) and ***Recent Settings*** (D300s only)

- My Menu (includes all items you've entered)
- Recent Settings Menu (D300S only)
- Choose tab (D300S only)

If you change the name of the NCSETUP5.BIN (or NCSETUP1) file, the D300(S) will not be able to reload your settings from it. Also, if you save the settings when an existing file is on the memory card, it will be overwritten without prompting you for permission.

My Recommendation: I think this function is a great idea. After using my new camera for a few days and getting it set up just right, I save the settings file to my computer for safekeeping. Later, if I accidentally remove my favorite settings in one or all of the memory banks, I just put the

backed-up settings file on a memory card, pop it into the camera, hit Load settings, and I’m back in business.

GPS

(User's Manual – D300S page 201; D300 page 203)

Nikon has wisely included the ability to GEO-tag your images with GPS location data. Now when you shoot a spectacular travel image, you can rest assured that you'll be able to find that exact spot next year. The D300(S) will record the following GPS information about your location in the metadata of each image:

- Latitude
- Longitude
- Altitude
- Heading (North, South, etc.)
- UTC (Time)

What You'll Need to Use a GPS Unit with Your D300(S)

The GPS unit you choose must be compatible with the National Marine Electronics Association (NMEA0183) version 2.01 or 3.01 data format.

I bought a Garmin eTrex Legend GPS unit to use with my D300 since the eTrex series is mentioned on page 201 of the D300 user's manual.

Later, I bought a Nikon GP-1 GPS unit for my D300S. I'll show both GPS units and cabling in this section. Either of these GPS units will work with either camera.

Nikon GP-1 GPS unit (see Figure 5-31):

- Nikon GP-1 GPS unit
- GP1-CA10 cable (included)

Aftermarket handheld Style GPS unit (e.g., Garmin eTrex Legend GPS – Figure 5-32):

- A GPS unit that meets the NMEAo 183 data format, such as the Garmin eTrex Legend.
- A data cable for that GPS unit. It must have a D-sub 9-pin connector (not a USB). This is usually included with the GPS unit. The D-sub 9-pin connector looks like a 9-pin serial port connector.
- The Nikon MC-35 GPS adapter cord (not included with the camera), which plugs into a D-sub 9-pin connector on one end and, on the other end, the camera's 10-pin port (under the larger rubber flap below the camera's main logo).

In Figure 5-31, let's take a look at the D300S with a Nikon GP-1 GPS unit attached to the camera's Accessory shoe (Figure 5-31, red arrow). You can also see the included GP1-CA10 cable plugged into the 10-pin connector on the camera. I deliberately put the curl in the cable to keep it from sticking out awkwardly.

One thing to note about the Nikon GP-1 GPS unit is that it doesn't have a built-in digital compass, so it will *not* report Heading information to the camera.

Figure 5-31. D300S with Nikon GP-1 GPS and GP1-CA10 cable

In Figure 5-32 we see the Garmin eTrex Legend GPS, included data cable, and the Nikon MC-35 cable (on the left). This type of GPS outfit works well, but there's an awful lot of cabling hanging around. The MC-35 cable plugs into the camera, the GPS unit's data cable plugs into the MC-35, and the GPS unit plugs into the data cable.

Newer handheld GPS units use USB cables, and even though the D300(S) has a USB port, it is not designed to work with aftermarket GPS units. If you decide to use an aftermarket GPS, just make sure you can get a data cable for it with a D-sub 9-pin connector to plug into the Nikon MC-35 cable.

Both GPS unit types allow you to use a cable release to fire the shutter.

The Nikon GP-1 GPS unit has a port on its side that allows you to plug in the optional MC-DC2 shutter-release cable. I suggest you get one of these at the same time you buy your Nikon GP-1 GPS unit.

You can use the GP-1 GPS on nearly any of your cameras with the included cables and the optional MC-DC2 release cable. The Nikon GP-1 GPS, and included cabling (CA-10 and CA-90), is compatible with the following cameras: D3 (series), D2 (series), D700, D300S, D300, D200, D90, and D5000.

Figure 5-32. D300, Garmin® eTrex Legend GPS and two cables

When you're using an aftermarket GPS unit like the Garmin eTrex, you'll have to plug a release cable into the Nikon MC-35 cable's accessory port (you can see the cables in Figure 5-32). The Nikon MC-35 cable has an extra 10-pin port—as on the camera—so you can plug in a Nikon MC-30 remote release cable to fire the shutter with the GPS all wired up.

Preparing the Camera for GPS Usage

There are several screens used in setting up the D300(S) for GPS use. First, a decision should be made about the exposure meter when a GPS unit is plugged into the camera. While the GPS is plugged in, the camera's exposure meter must be active to record GPS data to the image. You'll have to do one of two things:

- Set the exposure meter to stay on for the entire time that a GPS is plugged in, which, of course, will increase battery drain.
- Press the Shutter-release button halfway down to activate the exposure meter before finishing the exposure. If you just push the Shutter-release button down quickly and the GPS is not active and locked, it won't record GPS data to the image. The meter must be on before GPS will seek satellites.

Figure 5-33 shows the screens used to set the meter to stay on the entire time the GPS is connected or to act normally and shut down after the Auto meter off delay expires (see Custom setting C2 – defaults to 6 seconds).

You can select either Enable or Disable. Here's what each does:

- Enable (default) – The meter turns off after the Auto meter off delay expires, as set in Custom setting C2. GPS data will only be recorded when the exposure meter is active, so allow some time for the GPS unit to re-acquire satellites before taking a picture.

- Disable – The exposure meter stays on the entire time a GPS unit is connected. As long as you have good GPS signal, you will be able to record GPS data at any time. This is the preferred setting for using the GPS for continuous shooting. It does use extra battery life, so you may want to carry more than one battery if you're going to shoot all day.

Here are the steps and screens used to configure the GPS settings (see Figure 5-33):

Figure 5-33. GPS Auto meter off enable/disable screens

1. Choose GPS from the Setup menu and scroll to the right.
2. Select Auto meter off and scroll to the right.
3. Select Enable or Disable.
4. Press the OK button to lock in the setting.

There is also a Position setting, as shown in Figure 5-33, image 2. If your GPS unit is not attached to the camera, the Position selection is grayed out. Once a GPS is attached, the next screen after Position shows the actual GPS location data being detected by the D300(S), as shown in Figure 5-35. When the camera establishes communication with your GPS, it does three things:

1. A small GPS icon will be displayed on the Control panel (see Figure 5-34, red arrow).
2. Position information shows on the GPS Position screen (see Figure 5-35, image 2).

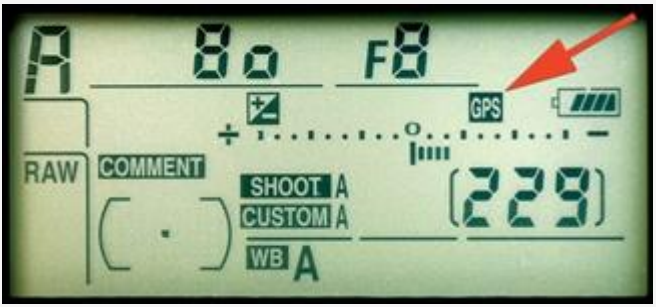


Figure 5-34. GPS icon on Control panel

3. An additional info screen may be displayed when you are reviewing the captured images (see Figure 5-36). To see this screen you'll have to check the Data check box under Playback Menu > Display mode > Data.

If the GPS icon is flashing on the Control panel, it means that the GPS is searching for a signal. If you take a picture with the GPS icon flashing, no GPS data will be recorded. If the GPS icon is not flashing, it means that the D300(S) is receiving good GPS data and is ready to record data to a picture. If the D300(S) loses communication with the GPS unit for over two seconds, the GPS icon will disappear. Make sure the icon is displayed, and isn't flashing, before you take pictures!

Figure 5-35. Position information on the GPS menu screen

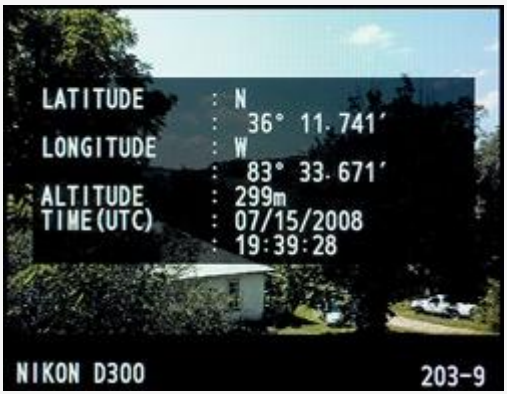


Figure 5-36. GPS Info screen from Nikon GP-1 GPS unit

If you want the GPS Heading information to be accurate, keep your GPS unit pointing in the same direction as the lens. Some GPS units also contain a digital compass. Point the GPS in the direction of your subject and give it enough time to stabilize before you take the picture or the Heading information will not be accurate. This does not apply to the Nikon GP-1 GPS unit, which has no digital compass. It only records Latitude, Longitude, Altitude, and UTC time, not the Heading.

Nikon also suggests that you keep a handheld GPS unit (e.g., Garmin eTrex) at least 8 inches (20 cm) away from the camera. Maybe it outputs enough electrical interference to cause problems for aftermarket GPS units. However, the Nikon GP-1 GPS unit mounts either onto the camera's Accessory shoe or on the camera's strap, with the included GP1-CL1 strap adapter. Evidently the Nikon GP-1 GPS is shielded well enough that mounting it onto the camera's Accessory shoe is no problem.

My Recommendation: Get the Nikon GP-1 GPS unit! It's easy to use, foolproof, and has all the cables you need for using it with the camera. The only other cable you'll need to buy is the optional MC-DC2 shutter-release cable. I use the tiny Nikon GPS unit constantly when I'm out shooting nature images so I can remember where to return in the future.

Many of the newer aftermarket GPS units are not compatible with the D300(S) since they use a USB cable for interfacing. That's a good thing or a bad thing, according to how you look at it. The bad thing is that your brand-new USB-based GPS is useless for recording data to your images.

The good thing is that you can buy older GPS units for very little money on eBay and even new old stock from dealers. I bought my Garmin® eTrex Legend mapping GPS on Amazon.com for just over $100 USD. It came with a D-sub 9-pin data cable. I had to buy the Nikon MC-35 cable, and I was all set!

Primarily, just be aware that the GPS unit must have a way to connect to the Nikon MC-35 cable in order to interface with the D300(S). Maybe a future firmware upgrade will give us

the ability to use the built-in USB connector on our cameras with a USB-based GPS. Nikon, are you listening?

Virtual Horizon (D300S only)

(User's Manual – D300S page 311)

The Virtual horizon is a new feature for the Nikon D300S camera only. This particular selection is not for live picture-taking use, however. All it does is bring up the Virtual horizon indicator on the camera's Monitor.

You can use it to help level your camera on a tripod or other stable shooting base.

The Live View and D-Movie modes have a smaller version of this Virtual horizon that you can see right through for live usage. Here are the steps to use the Virtual horizon (see the screens in Figure 5-37):

Figure 5-37. Virtual horizon indicator

1. Choose Virtual horizon from the Setup Menu and scroll to the right.

2. The following screen shows the Virtual horizon indicator. You can now use it to level the camera on your tripod.

My Recommendation: Honestly, I don't use Virtual horizon very often. Instead I have Custom setting d2 (Viewfinder grid display) turned on. The grid lines allow me to look at my subject while leveling my camera. As a stand-alone, non-see-through Virtual horizon, this screen has little functionality for me. You may have other uses for it. To me, the smaller see-through version found in Live View and D-Movie mode is much nicer to use.

Non-CPU Lens Data

(User's Manual – D300S page 196; D300 page 199)

Non-CPU lens data helps you use older non-CPU Nikkor lenses with your camera. Do you still have several older AI or AI-S Nikkor lenses? I do! The image quality from the older lenses is simply outstanding with the D300(S), especially since the smaller DX-sized sensor uses only the sweet-spot center of the older lenses.

Since the D300(S) is positioned as a professional camera, it must have the necessary controls to use both Auto focus (AF) and Manual focus (MF) lenses. Many photographers on a budget use the older MF lenses to obtain professional-level image quality without having to break the bank on expensive lens purchases. One can acquire excellent AI/AI-S Nikkor lenses on eBay for $100–$300 USD and have image quality that only the most expensive zoom lenses can produce.

Lens manufacturers like Zeiss and Nikkor are still making MF lenses, and because some of them do not have a CPU (electronic chip) that communicates with the camera, it's important to have a way to let the D300(S) know something about the lens in use.

This Non-CPU lens data function allows you to do exactly that. You can store information for up to nine separate non-CPU lenses within this section of the D300(S).

Here are the screens and steps to configure each of your non-CPU lenses for usage within Non-CPU lens data (Figure 5-38):

1. Select Non-CPU lens data from the Setup Menu and then scroll to the right.
2. Scroll down to Lens number and scroll left or right until you find the number you want to use for this particular lens.
3. Scroll down to Focal length (mm) and scroll left or right to select the focal length of the lens. If this is a zoom lens, just select the widest setting. This works okay since the meter will adjust for any light falloff that may occur as the lens is zoomed out.

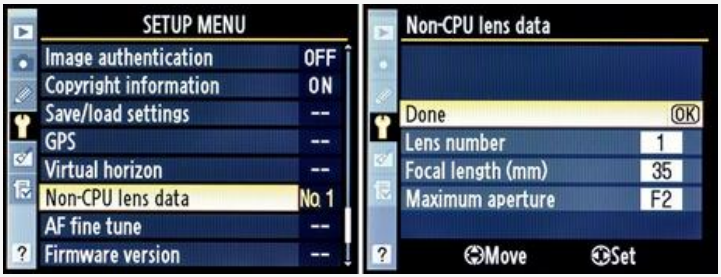


Figure 5-38. Non-CPU lens screens with lens No.1 showing

4. Scroll down to Maximum aperture and scroll left or right to select the maximum aperture of the lens. If this is a variable-aperture zoom lens, just select the largest aperture the lens can use. This works fine since the meter will adjust for the variation in the aperture.
5. Scroll to Done and press the OK button to store the setting.

Here's a more detailed analysis of the Non-CPU lens data screen selections:

- ***Done –*** When you have completed the setup of a particular lens, or several lenses, simply scroll to this selection and press the OK button. Your lens data will be saved within the D300(S). Later, you can put a non-CPU lens on your camera and select it from the list of nine lenses. You can use external camera controls or the Non-CPU lens data menu to change to your current lens.

- ***Lens number –*** Using the Multi Selector, you can scroll left or right to select one of your lenses. There are a total of nine lens records available. When you select a Lens number here, the focal length and maximum aperture of that lens will show up in the Focal length and Maximum aperture fields. If you've not set a lens for a particular Lens number, then you'll see double dashes - -in the Focal length and Maximum aperture fields.

- ***Focal length (mm) –*** This field contains the actual Focal length in millimeters (mm) of the Lens number in use. You can select focal lengths from 6 mm to 4000 mm. Hmm, I didn't know they even made a 4000 mm lens. I want one!

- ***Maximum aperture –*** This field is for the Maximum aperture of the lens. You can enter an F number from F1.2 to F22. Remember, this is for the maximum aperture only (largest opening or f/stop). Once you've entered a maximum aperture, the camera will be able to determine the other apertures by your use of the aperture ring on the lens. (Remember those?)

Once you're done entering the data on your nine lenses, don't forget to use the Done selection to save your work! The Done selection serves double-duty by allowing you to either select a

lens or save changes to one or all of your nine lenses. In other words, you can use the set of screens in Figure 5-38 to both input and select a non-CPU lens.

When you have selected a lens for use, the Setup Menu > Non-CPU lens data selection will show the number of the lens you've selected. It will be in the format of No.1 to No.9. Notice that in image 1 of Figure 5-38, you can see the lens selection (No.1) at the end of the Non-CPU lens data line.

Selecting a Lens by Using the Non-CPU Lens Menu

You can select a non-CPU lens when it's time to shoot pictures by following these steps:

1. Open the Non-CPU lens data screen (see Figure 5-38).
2. Select a lens by scrolling left or right on the Lens number field.
3. Scroll up to the Done selection and press the OK button.

Selecting a Non-CPU Lens by Using External Camera Controls

The D300(S) allows you to customize its buttons to do things the way you want them to be done. You may only have one or two non-CPU lenses, so it may be sufficient to just use the Non-CPU lens data menu to select a lens. However, if you have a good selection of non-CPU lenses, you may wish Nikon gave us more than nine lens selections in the Non-CPU lens data menu.

Since I use a lot of AI Nikkors, I use the Custom Setting Menu's assign button functions to map my favorite button for using Non-CPU lens data.

I used Custom setting f7 (D300S) or f6 (D300) to map AE-L/ AF-L + command dials, to allow me to select one of my nine non-CPU lenses on the fly. By holding down my camera's AE-L/AF-L button while turning the front Sub-command dial, I can select any of my nine lens selections on the Control Panel.

Some people use the Fn button on the front along with the rear Main command dial to do the same. The D300(S) allows you to be creative in that respect. I use the Fn button/ Main command dial as my Bracketing button, since I can operate that combo with one hand and shoot brackets quickly.

My Recommendation: I like using the AE-L/AF-L button in combination with the front Sub-command dial to select my non-CPU lenses. You can map any of several D300(S) buttons, in combination with a command dial, to select non-CPU lenses. Please refer to the chapter titled **Chapter 4** and the sections on button assignment (e.g., **Assign Fn button**) for instructions on how to map the camera's assignable buttons and dials.

AF Fine Tune

(User's Manual – D300S page 312; D300 page 327)

One thing that really impresses me about the D300(S) is its ability to be fine-tuned in critical areas like metering and autofocus. Previous to the D300(S), if an AF lens had a back focus problem, you just had to tolerate it or send it off to be fixed by Nikon. Now, with the new AF fine tune controls, you can adjust your camera so that the lens focuses where you want it to focus.

Nikon has made provisions for keeping a table of up to 12 lenses that you've fine-tuned. It recommends that you only use the fine-tuning system if you know what you are doing, and only when required. The idea behind fine-tuning is that you can push the focus forward or backward in small increments, with up to 20 increments in either direction.

When the little round, green AF indicator comes on in your camera's Viewfinder and AF fine tune is enabled for a lens you've already configured, the actual focus is moved from its default position forward or backward by the amount you've specified. If your lens had a back focus problem and you moved the focus a little forward, the problem is solved.

Figure 5-39. AF Fine tune, first two screens

Following are the screens and steps to configure AF fine tune for lenses you own, if needed (see Figure 5-39 through Figure 5-43). There are four selections on the AF fine tune menu:

- AF fine tune (On/Off)
- Saved value
- Default
- List saved values

Each of the following FIGs continues where Figure 5-39 left off. Figure 5-40 shows the first two configuration screens in the AF fine tune series.

Each of the four selections listed has its own screen for configuration.

We'll carefully examine each of them, and discuss what it does and how to configure it.

Figure 5-40. AF fine tune configuration screens

AF fine tune (On/Off) – In Figure 5-40 we see the AF fine tune (On/Off) screen and its selections. The two values you can select are as follows:

- ***On*** – This setting turns the AF fine tune system on. Without this enabled, the D300(S) focuses like a factory default D300(S).
- ***Off*** – This default setting disables the AF fine tune system.

Saved value – With an AF lens mounted, Saved value allows you to control the amount of front or back focus you'd like to input for the listed lens. At the top left of the configuration screen in Figure 5-41, image 2, just under the words Saved value, you'll see the focal length of the lens mounted on your camera, the maximum aperture, and the number assigned to the lens. If you're configuring a lens for the first time, you'll probably see No. 1. You can fine-tune for a maximum of 12 lenses.

Figure 5-41. Saved value configuration screens

To the right of the lens information is a scale that runs from +20 on top to -20 on the bottom. The yellow pointer starts out at o. You can move this yellow pointer up or down to change the amount of focus fine-tuning you want for this lens. Moving the pointer up on the scale pushes the focal point away from the camera, while moving it down pulls the focal point toward the camera. In Figure 5-41, image 2, I set my 18-50mm lens to +5 front focus. Once you are done, press the OK button.

Default – The Default configuration screen looks a lot like the Saved value screen, except there is no lens information listed. This Default value will be applied *to all AF lenses you mount* on your camera. If you are convinced that your particular camera always has a back or fore focus problem, and you are not able or ready to ship it off to Nikon for repair, you can use the Default value to push the auto focus in one direction or the other until you are satisfied that your camera is focusing the way you'd like.

As shown in Figure 5-42, to set an AF fine tune > Default value, use the scale that runs from + 20 on top to -20 on the

bottom. The yellow pointer starts out at o. You can move this yellow pointer up or down to change the amount of focus fine-tuning you want for whatever lens you currently have on the D300(S) if no value already exists in the Saved value for the lens. Moving the pointer up on the scale pushes the focal point away from the camera (front focus), while moving it down pulls the focal point toward the camera (back focus). Once you are done, press the OK button.

Figure 5-42. Default configuration screens

It appears to me that you could use this Default value as a value for any of your AF lenses that do not have a Saved value. I tested this by setting a Saved value of +1 for my AF-S Nikkor 18-70mm. While the 18-70 was still mounted, I also set a value of -2 for the Default value. When I removed the 18-70mm and mounted an AF Nikkor 60mm micro lens the +1 in the Saved value field disappeared, but the -2 in the Default field stayed put. So, it looks like you could use the Default field either for all AF lenses that have no Saved value or for a currently mounted AF lens that you want to adjust for this moment without saving a value.

Figure 5-43. List saved values configuration screens

List saved values – Notice in Figure 5-43 that there are several screens used to configure the list of saved values. List saved values helps you remember which lenses you've fine-tuned the D300(S) to use. It also allows you to set an identification number for a particular lens.

Many people use the last two digits of the lens's serial number as the List saved values number for that lens. Or, you can just select a sequential number from 1-12.
In the second screen of Figure 5-43, you'll see a list of lenses. If you'll notice in the third screen, there is a little box in the middle after "No". This little box is a scroll box that allows you to use your camera's Multi Selector to scroll up or down from 00 to 99. That way, you can set whatever number you want to use for each particular lens.

My Recommendation: AF fine tune is good to have! If I buy a new lens and it has focus problems, I don't keep it. Back it goes to the manufacturer for a replacement. However, if I buy a used lens, or have had one long enough to go out of warranty—and it later develops front or back focus—the camera allows me to fine-tune the autofocus for that lens. A professional camera has these little necessities to keep you out of trouble when shooting commercially.

Eye-Fi Upload (D300S only)

(User's Manual – D300S page 313)

Eye-Fi upload only shows on the Setup Menu of your D300S when you have an Eye-Fi card inserted.

The Eye-Fi company makes several of these tiny SD/ SDHC cards with built-in Wi-Fi transmitters. Figure 5-44 shows my personal **Eye-Fi 8GB Pro X2** high-speed "Class 6" Secure Digital (SD) card.

With an Eye-Fi card inserted, and Eye-Fi software installed on your laptop computer (or any computer connected via a wireless network connection), you can take pictures and they are automatically transferred to your computer.

Figure 5-44. Eye-FI 8GB Pro X2

You can also ask the card to simultaneously transfer the images to file-sharing websites like Flickr and Facebook (plus 23 more).

Most lower-cost Eye-Fi cards require a wireless network to transfer the images. However, recently Eye-Fi came out with a card that will do "Ad Hoc" transfers, meaning that they don't need a wireless network connection and will send pictures directly to a computer with wireless capability. In effect, the Eye-Fi card becomes a wireless (Wi-Fi) transmitter that can talk directly to a Wi-Fi-enabled notebook or desktop computer—without an intervening network.

At the time of this book's writing, only one card—the **Eye-Fi 8GB Pro X2**—will transfer directly to a notebook computer without needing a wireless network as an intermediary. The other cards cost less but require a wireless network connection to move images.

Eye-Fi separates its Ad Hoc transfer capable card(s) under the Pro moniker. The other cards have names like Connect X2, Geo X2, and Explore X2. Only the Pro X2 cards can do the "no network required", direct-to-computer Ad Hoc file transfers. Since memory cards are extremely volatile, price-wise, I'm sure that capacities and
card names will change quickly. However, just be aware that only the cards considered pro-level by Eye-Fi will do Ad Hoc transfers.

Enabling Uploads on the D300S – Here are the screens and steps to Enable or Disable Eye-Fi upload (see Figure 5-45):

1. Choose Eye-Fi upload from the Setup Menu and scroll right.

2. Select Enable or Disable from the Eye-Fi upload screen.

Figure 5-45. Eye-Fi Enable or Disable screens

3. Press the OK button to lock in the setting.

Unless you are currently shooting images for transfer, I wouldn't leave the Eye-Fi upload feature enabled. Why waste battery life out in the woods where there are no wireless networks? To make it really convenient to access the Eye-Fi upload function for quick enabling—when needed only—I simply added it to My Menu in the D300S. We'll examine how to do that in an upcoming chapter.

You may download additional information on using an Eye-Fi card from this book's downloadable resources on the Web: **http://rockynook.com/NikonD300S**.

My Recommendation: I wanted to buy a nice Nikon WT-4 transmitter until I saw the price. Whew! I think I'd rather buy that AF-S Nikkor 200-400mm F/2.8 ED VR lens I crave mightily. So, instead, I bought an Eye-Fi card for about one-eighth of the price. I don't have the large wireless range and multiple modes the powerful WT-4 transmitter offers, but I can shoot an event within 50–90 feet of my notebook computer and have immediate Ad Hoc file transfer wirelessly.

Now, I can do a photographic walkabout downtown and stop in at a McDonalds or Starbucks for a burger, coffee, and a free wireless connection—and transfer my images to the home computer while I eat. I really like this little Eye-Fi card!

Firmware Version

(User's Manual – D300S page 314; D300 page 328)

Firmware version is a simple informational screen, like the Battery info screen. It informs you which version of the camera's operating system (firmware) you are running.

Figure 5-46 shows the firmware version after I updated from 1.00. FIG 24B shows the screens while I was doing an update from version 1.00 to 1.01 on my D300S.

Here are the screens and steps to see the Firmware version (see Figure 5-46):

1. Choose Firmware version from the Setup Menu and scroll to the right.
2. Examine the update version. When Done, press the OK button.

Figure 5-46. Firmware version screens

Upgrading Your Camera's Firmware

From time to time, Nikon will release a firmware upgrade for your camera. You may want to install this upgrade because it often fixes bugs, speeds things up, and even adds features to your camera. Here are the screens and steps for actually doing a firmware update (see Figure 5-47, continuing from Figure 5-46):

1. Make a note of the pre-upgrade A and B Firmware version numbers so that you can validate the update after the process is finished. Format a memory card in the camera in preparation for the update files.

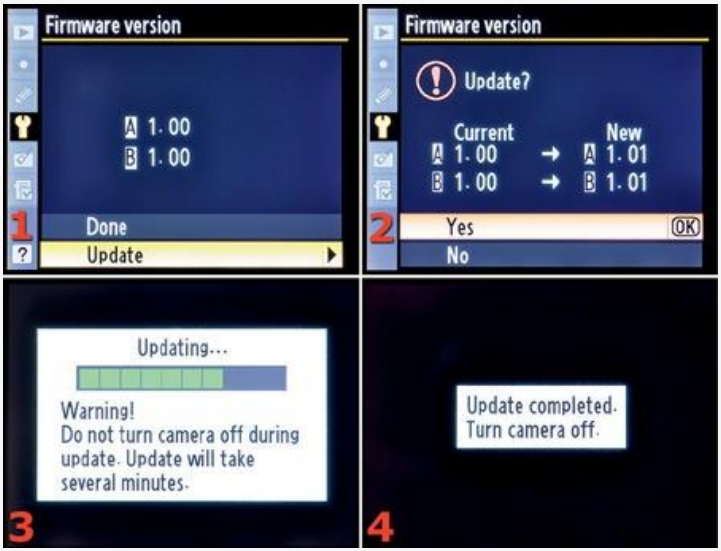


Figure 5-47. Firmware version update screens

2. Turn off the camera and remove the memory card from your camera. Insert it in a computer card-reader and

copy the firmware update files (e.g., D300S101.BIN) into the root folder (top level) of your camera's memory card.

3. Make sure that you have a fully charged battery powering the camera, turn off the camera, and insert the memory card containing the firmware update file. Continuing from Figure 5-46, you'll notice that there is now an Update choice that appears below the Done selection in Figure 5-47, image 1.

4. Select Update and scroll to the right (see Figure 5-47, image 1).

5. Choose Yes from the menu and press the OK button (see Figure 5-47, image 2).

   Do not turn the camera off during the firmware upgrade process or it may need to be repaired by Nikon before it will work again! You will receive instructions on the camera's Monitor when it is safe to turn the camera off.

6. You'll see the update taking place with a screen like the one in Figure 5-47, image 3. The green progress bar will move from left to right while the update is happening. Do not touch the camera while this update is taking place.

7. The update process will be finished when the progress bar reaches the right side. A final screen will pop up informing you, *Update completed. Turn camera off (see* Figure 5-47, image 4). It is now safe to turn the camera off and back on. When it comes back on, the new firmware will be running.

8. Check the Firmware version again to see if the update is in place. Format the memory card containing the upgrade files immediately.

9. Take pictures with your camera's new firmware in place.

The steps above are merely an outline of the more comprehensive Nikon instructions that come with each firmware update. The steps could change, so please check the Nikon instructions and understand them before starting the process.

My Recommendation: Personally, I always update my cameras as soon as a new firmware version is available. Nikon publishes the major features covered by the update on its website. Do a Google search on "firmware update Nikon D300" (or D300S) and then look for the **http://support.nikontech.com** website. You'll find upgrade information there, including downloadable files and instructions.

The reason I always upgrade my camera is because I figure that Nikon is not going to publish every little bug it has fixed in each firmware upgrade, and I want all mine fixed. I've never yet—in 8 years of upgrading the firmware on my Nikons—had a failure or problem. I just followed the published directions and all was fine. It's an easy process!

My Conclusions

Whew! The D300(S) may seem like a complicated little beast, but that's what you get when you fold professional-level functionality into a relatively small DSLR body. Complex as it is, I'm certainly delighted with it.

Next, we'll consider how to use the camera's Retouch Menu to adjust images without using a computer. If you are in the field shooting RAW files and you need a quick JPEG or black-and-white version of a file, well, the Retouch Menu has you covered.

You can even do things like Red-eye correction, Color balance changes, filtration, cropping, and image resizing—all without touching a computer. Let's see how!

Chapter 6. Retouch Menu

Free Climber – Courtesy of Octavian Radu Topai (*Tavi*)

Retouching allows you to modify your images in-camera. If you like to do digital photography but don't particularly like to adjust images on a computer, these functions are for you! Obviously, the camera's Monitor is not large enough to allow you to make heavily creative changes to an image—as you could do within Nikon Capture NX2 or Photoshop. However, it is surprising just what you can accomplish with the Retouch Menu.

The D300S has 11 Retouch Menu selections, while the D300 has eight. Here is a list of each function and what it does:

- **D-Lighting –** Opens up detail in the shadows and tends to protect highlight details from blowing out. This is similar to the Shooting Menu > Active D-Lighting function, but it's applied *after* the image is taken.
- **Red-eye correction –** Removes the unwanted "red-eye" effect caused by light from a flash reflecting back from the eyes of your human subjects.
- **Trim –** Creates a trimmed (cropped) copy of a selected photograph. You can crop the image in several aspect ratios in the D300S, including 1:1, 3:2, 4:3, 5:4, and 16:9. The D300 only has 3:2, 4:3, and 5:4.
- **Monochrome –** Lets you convert your color images into monochrome. There are three tints available, including Black-and-white (grays), Sepia (reddish), and Cyanotype (bluish).
- **Filter effects –** Allows you to "warm up" an image in a couple of ways. First, the Skylight filter effect removes blue. Second, the Warm filter adds a warm red cast.

- **Color balance –** You can change the color balance of your image by increasing or decreasing the amount of Green, Blue, Amber, and Magenta.
- **Image overlay –** This creates a new image by overlaying two existing NEF (RAW) files. Basically, you can combine two RAW images to create special effects—like adding an image of the moon into a separate landscape picture.
- **NEF (RAW) processing (D300S only) –** Allows you to create highly specialized JPEG images from your NEF (RAW) files without using your computer.
- **Resize (D300S only) –** Lets you take a full-size image and convert it into several smaller sizes. This is useful if you would like to send an image via email or simply need a smaller image for other reasons.
- **Edit movie (D300S only) –** Allows you to shorten a movie by cropping out a smaller section from the large movie file.
- **Side-by-side comparison –** Lets you compare a retouched image—created with the Retouch Menu—with its original image. The images are presented side by side so that you can see before and after effects.

There are limitations imposed when you are working on an image that has already been retouched. Here's a look at the Retouch Menu for both the D300S and D300 (see Figure 6-1).

Figure 6-1. Retouch Menu for D300S and D300

It's the fifth menu down the menu selection bar, just below the Setup Menu.

When you use Retouch Menu items, the D300(S) does not overwrite your original file but always creates a JPEG file with the next available image number. The retouched image will be numbered as the last image on the memory card. If you have 100 images on your card and you are retouching image number DSC_0047, the resulting new JPEG image will have the number DSC_0101—or is now the 101st image. The D300(S) looked to see how many images were on the memory card (100) and then added the retouched image like it was a brand-new exposure, assigning it the next available image number.

There are two methods for accessing the Retouch Menu. You can use the Retouch Menu directly to choose an image to work with, or you can display an image in Playback mode and press the OK button to open the Retouch Menu. They work basically the same, except that the Playback Retouch Menu leaves out the step of choosing the image (since there is already an image on the screen) and it has fewer retouch

selections. The most comprehensive retouch selections are available directly under the Retouch Menu.

Figure 6-2. Retouching from Playback preview

Since both the Playback Retouch Menu and direct Retouch Menu methods have the same functions, we'll discuss them as if you were using the Retouch Menu. However, in case you decide to use the Playback method, let's discuss it briefly.

Playback Retouching

Here are the steps to use if you want to work with an image that you are viewing on your camera's Monitor—what I call

Playback retouching. To use the Retouch Menu options, you'll follow four basic steps (see Figure 6-2):

1. Press the Playback button and choose a picture by displaying it on the Monitor (see Figure 6-2, images 1 and 2). You'll now have a picture ready for retouching. I chose a picture of my parents in Figure 6-2, image 2.
2. Press the OK button to open an abbreviated Retouch Menu (see Figure 6-2, image 3).
3. Select one of the Playback Retouch Menu items and make any adjustments required (see Figure 6-2, image 4).
4. Press the OK button to create the retouched copy.

Some of the Retouch Menu options are not available under the Playback Retouch Menu. That's why I used the full Retouch Menu for this chapter. Remember that Playback retouching is available by simply pressing the OK button when an image is showing on the Monitor.

The following direct methods require that you select a Retouch Menu function, and then select an image upon which to apply the effect the function provides. Let's consider each section of the Retouch Menu in detail.

Using Retouch Menu Items Directly

D-Lighting

(User's Manual – D300S page 319; D300 page 334)

D-Lighting allows you to reduce the shadows in an image, and maybe even reign in the highlights a bit. It lowers the overall image contrast, so it should be used sparingly. The D300(S) is not aggressive with its D-Lighting, so you can use it quickly if needed. Also, please remember that Retouch Menu effects are only applied to a copy of the image, so your original is safe.

The screens and steps for D-Lighting an image are as follows (see Figure 6-3):

Figure 6-3. D-Lighting screens

1. Select D-Lighting from the Retouch Menu and scroll to the right.
2. Select the image you want to modify (see Figure 6-3, image 2).

3. Choose the amount of D-Lighting you want for the chosen image, using the Multi Selector to scroll up or down. You'll choose from Low, Normal (or medium), and High D-Lighting (see Figure 6-3, image 3).

4. When the image on the right looks the way you want it to look, press the OK button to save the new file. The D300(S) will display a brief *Image saved* notice and then display the new file on the Monitor.

My Recommendation: There is no one setting that is correct for all images. I often use Normal (medium) to see if an image needs more or less D-Lighting and then leave it at that or change to High or Low as needed. Remember that any amount of D-Lighting has the potential to introduce noise in the darker areas of the image, so the less D-Lighting you use, the better.

Red-Eye Correction

(User's Manual – D300S page 320; D300 page 335)

Red-eye correction attempts to change bright red pupils—caused by flash exposure reflection—back to their normal dark color. Red-eye makes a person look like one of those aliens with glowing eyes from a science fiction show.

If you've used flash to create a picture, the Red-eye correction function will work on the image if it can detect any red-eye. If it can't detect red-eye in the image, it will not open the red-eye system but will briefly display a screen informing you that the camera was unable to detect red-eye in the selected picture.

Figure 6-4. Red-eye correction screens

If you try to run Red-eye correction on an image for which flash was not used, the camera will inform you, *Cannot select this file.*

Here are the screens and steps to execute the Red-eye correction function on an image (see Figure 6-4):

1. Select Red-eye correction from the Retouch Menu and scroll to the right (see Figure 6-4, image 1).
2. Select the image you want to modify (see Figure 6-4, image 2).
3. Press the OK button to execute Red-eye correction routines. You'll see an hourglass on your screen for 3 to 5 seconds (see Figure 6-4, image 3).

4. After Red-eye correction is complete, you can use the Playback zoom in button to zoom in on the image to see how well it worked. Zoom back out with the checkered Thumbnail/playback zoom out button.

5. Press the OK button to save the file under a new file number, or you can press the Playback button to cancel (see Figure 6-4, image 4).

My Recommendation: I've found that the Red-eye correction function works pretty well as long as the subject is fairly large in the frame. The lovely young lady in Figure 6-4, image 4, had serious red-eye in the original image. That gives you an idea of how large in the frame the subject will have to be for this function to work well.

I have tried it on smaller subjects—where there are larger groups of people—and it sometimes works and other times doesn't. When the subject is smaller, the eyes are much smaller too. The camera may struggle to find the red-eye in very tiny pictures. I've had it correct one eye that was closer to the camera (larger) and not the other. I would rate this function as helpful, but not always completely effective.

On larger subjects (close-ups) it does well, but on smaller ones, sometimes not so well. However, it's a good function to have for quick Red-eye correction on critical images you need to use immediately.

Trim

(User's Manual – D300S page 321; D300 page 336)

The Trim function allows you to crop an image in-camera, change its aspect ratio, and save the file as a new image. Your original image is not modified.

This is a useful function if you need to cut out, or crop, the most useful area of an image to remove distracting elements from the background.

Here are the screens and steps to Trim an image in-camera (see Figure 6-5):

Figure 6-5. Trim screens

1. Select the Trim function from the Retouch Menu and scroll to the right (see Figure 6-5, image 1).
2. Select the image you want to modify (see Figure 6-5, image 2). Press the OK button when you have selected your target image.
3. You'll now be presented with a screen that has a crop outlined in yellow (see Figure 6-5, image 3). Use the checkered Thumbnail/playback zoom out button to create a deeper crop or the Playback zoom in button for a lesser crop. Use the Multi Selector to move the yellow selection rectangle in any direction within the frame until you find your best crop.

4. Select the aspect ratio of the crop by rotating the rear Main command dial. Your choices in the D300S are 3:2, 4:3, 5:4, 1:1 (square), or 16:9—and 3:2, 4:3, or 5:4 in the D300. You can use the Multi selector center button to enlarge your selected crop to full screen so that you can see how it will look after cropping. The image shown in Figure 6-5, image 3, shows the 3:2 Aspect ratio selected in the upper-right corner.
5. Once you have the crop correctly sized and the Aspect ratio set, press the OK button to save the new image under a new file number.

My Recommendation: This is a very useful function for cropping images without a computer. The fact that you have multiple Aspect ratios available is just icing on the cake. The D300S adds some useful Aspect ratios, including a square (1:1) and an HD format (16:9).

Monochrome

(User's Manual – D300S page 322; D300 page 337)

The Monochrome function in the D300(S) is fun to play with and can make some nice images. You have the choice of three different types of Monochrome:

- Black-and-white (grays)
- Sepia (golden-toned)
- Cyanotype (blue-toned)

If you select Black-and-white, the D300(S) only provides one level of lightness and darkness. However, for Sepia and

Cyanotype, you can fine-tune the tint from almost nothing to pretty saturated in three levels.

On the following page are the screens and steps to create a Monochrome image from one of your color images (see Figure 6-6):

1. Select Monochrome from the Retouch Menu and scroll to the right (Figure 6-6, image 1).
2. Select a Monochrome tone—Black-and-white, Sepia, or Cyanotype (Figure 6-6, image 2).
3. Select the image you want to modify (Figure 6-6, image 3).

Figure 6-6. Monochrome screens

4. For a Black-and-white image, you cannot adjust the level of lightness or darkness. For Sepia and Cyanotype, you can use the Multi Selector to saturate or desaturate the tone. Scroll up or down and watch the screen until the tint is just where you want it to be. You can cancel with the Playback button (Figure 6-6, image 4)

5. Press the OK button to save the new image under a new file number.

My Recommendation: I normally use the Black-and-white conversion when I need an immediate Monochrome image. However, it's a lot of fun to make the image look "old-timey" with either Sepia or Cyanotype. New Sepia-toned images can look very old if you dress people accordingly.

Filter Effects

(User's Manual – D300S page 322; D300 page 338)

Many times when you shoot images outdoors under an overcast sky or under certain types of artificial lighting, they can have a bluish cast, or look "cool". Filter effects can help with that.

The Filter effects selection provides a simple way to apply two specific warm filter effects to an existing image:

- Skylight – Provides an effect similar to a skylight filter, which removes some of the blue in an image. This is not a very strong effect and should only be used for very mild warming (blue reduction).

- Warm filter – Provides an even stronger warming effect by adding a reddish tint to the image. This is sort of like an 81A or Nikon A2 warming filter.

Here are the screens and steps to warm up the image a bit (see Figure 6-7):

1. Select Filter effects from the Retouch Menu and scroll to the right (see Figure 6-7, image 1).
2. Select either Skylight or Warm filter (see Figure 6-7, image 2).
3. Select the image you want to modify (see Figure 6-7, image 3).

Figure 6-7. Filter effects screens

4. Press the Playback button to cancel or the OK button to save the new, warmer image under a new file number.

My Recommendation: The Skylight effect is so mild that I don't find it particularly useful. Of course, a real skylight filter doesn't provide a strikingly warmer image either, so I guess it's just a good imitation of a weak filter.

However, the Warm filter does add some significant warmth to the image and is very similar to an 81A warming filter (Nikon A2), so it's more useful for when you simply want to warm up a somewhat cool image without using your computer.

The Warm filter adds a certain goldenness to the image that is very appealing for the right type of picture. The human eye likes warm colors better, so this is truly a useful filter if you would rather not use your computer to modify the image.

Color Balance

(User's Manual – D300S page 323; D300 page 338)

Color balance lets you deliberately add various tones to your pictures. You can visually add a light or strong color cast.

You might just want to warm things up a bit by adding a touch of red or cool things down with a touch of blue. Or you could get creative and simply add various color casts to the picture for special effects. You'll see what I mean when you try it.

You can tone the image with the following color casts:

- Green

- Blue
- Amber
- Magenta

Here are the screens and steps to modify the Color balance in your image (see Figure 6-8):

Figure 6-8. Color balance screens

1. Select Color balance from the Retouch Menu and scroll to the right (see Figure 6-8, image 1).
2. Select the image you want to modify (see Figure 6-8, image 2).
3. Use the Multi Selector to move the tiny black indicator square in the center of the color box toward whatever colors make you happy (see Figure 6-8, image 3). Watch the histograms as they display the changing color relationships between the red, green, and blue color channels. You can see the color changes or casts as they are applied to the small version of your image in the upper-left corner of the final Color balance screen.
4. Press the Playback button to cancel or the OK button to save the new image under a new file number.

My Recommendation: This is a cool function for persnickety people and I'm one of them! If you like to fine-tune the color of your pictures—but hate using the computer—here's your control. You can introduce almost any color tint into the image by moving the little black square in any direction, using combinations of colors to arrive at one that pleases you. This also allows you to overcome current color casts caused by various lighting-source color temperatures. Very flexible camera, eh?

Image Overlay

(User's Manual – D300S page 324; D300 page 339)

The Image overlay function is a nice way to combine two RAW images as if they were taken as a multiple exposure. Basically, you can select a couple of NEF (RAW) shots and combine them into a new overlaid image.

The results can be a lot like what you get when using Shooting Menu > Multiple exposure, but Image overlay gives you a visual way to overlay two separate images instead of shooting multiple exposures on one picture.

The results can be of high quality because the overlay is done using RAW image data.

Here are screens and steps to do an Image overlay (see Figure 6-9):

Figure 6-9. Image overlay screens

1. Select Image overlay from the Retouch Menu and scroll to the right (see Figure 6-9, image 1).

2. Insert the first RAW image in the Image 1 box (outlined in yellow) by pressing the OK button and selecting an image from the selection screen. Press the OK button again to return to the combination screen (see Figure 6-9, images 2–4). You can vary the "gain" of the first image by using the Multi Selector to scroll up or down in the X1.0 field seen in Figure 6-9, image 4. The X1.0 setting is variable between X0.1 and X2.0. It lets you control how bright or dark (dense) an image is so that it can more closely match the density of the other image in the overlay. X1.0 is normal image density.

3. Use the Multi Selector to move the yellow box to the Image 2 position (see Figure 6-9, image 5). Press the OK button and select the second picture from the image selection screen, then press the OK button again to insert the image (see Figure 6-9, images 5-7). As mentioned in step 2, you can use the X1.0 field to vary the density of the second image in the overlay, just like the first. Try to match the density as much as possible to provide a realistic overlay.

4. Move the yellow box to the Preview area. You'll see two selections below it: Overlay and Save. Choose one of them (see Figure 6-9, image 8).

5. If you select Overlay, the D300(S) will temporarily combine the images and present you with another screen that allows you to see the images more closely. You can press the OK button to save the new image under a new file name or the checkered Thumbnail/playback zoom out button to return to the previous screen.

6. If you choose Save instead of Overlay and press the OK button, the D300(S) immediately combines the two images and saves the new image under a new file name—without letting you review the image first. Basically, the Save selection saves now, while Overlay gives you a preview of the combination to allow you a choice of modifying or saving it.

My Recommendation: This is an easy way to overlay images without a computer. There are some drawbacks, though. One image may have a strong background that is impossible to remove, no matter how much you fiddle with the image density or gain (X0.1 to X2.0). This is a situation in

which a computer excels, since you can use software tools like masking in Capture NX2 or Photoshop to remove parts of the background and make a more realistic overlay. However, if you must combine two images in the field, you have a way to do it in-camera.

NEF (RAW) Processing (D300S only)

(User's Manual – D300S page 327)

NEF (RAW) processing is a function that allows you to convert a RAW image into a JPEG inside the camera. If you normally shoot in RAW but need a JPEG quickly, this is a great function. NEF (RAW) processing is only available on the D300S, not the D300. And it only works on images taken with the D300S, so you can't insert a card from your Nikon D90 and expect to process its images.

There is quite a comprehensive catalog of things you can do to an image during NEF (RAW) processing. A RAW file is not yet an image, so the camera settings you took it with are not permanently applied. In effect, when you use NEF (RAW) processing you are applying camera settings to the JPEG image after the fact, and you can change them to settings different from those with which you took the image originally.

These same settings are available in the Shooting Menu or by using external camera controls. However, in this case, the settings are applied to the image after the fact, instead of while shooting. See the chapter of this book titled **Chapter 3** for a deeper explanation of each setting.

Here's a list of post-shooting adjustments you can make, with basic explanations of each function:

- ***Image quality*** – You are converting to a JPEG file, so the camera gives you a choice of FINE, NORM, or BASIC. These are the equivalent of the Shooting Menu > Image quality settings called JPEG fine, JPEG normal, or JPEG basic.
- ***Image size*** – This lets you select how large the JPEG file will be. Your choices are L, M, or S, which equal the Large (12.2 megapixels), Medium (6.9 megapixels), or Small (3.1 megapixels) Shooting Menu > Image size settings.
- ***White balance*** – This lets you change the image's White balance after you've already taken the image. You can select from a series of symbols that represent various types of White balance color temperatures. As you scroll up or down in the list of symbols, notice that the name of the corresponding White balance type appears just above the small picture. You can see the effect of each setting as it is applied.
- ***Exposure compensation*** – This function allows you to brighten or darken the image by applying +/- Exposure compensation to it. You can apply compensation up to 3 EV in either direction (+3 to -3 EV).
- ***Picture control*** – With this setting you can apply a different Picture Control to the image. It shows an abbreviation like SD, NL, VI, or MC for each Nikon Picture Control, plus any Custom Picture Controls you might have created with the designation of C-1, C-2, C-3, etc.

- ***High ISO noise reduction*** – You can change the amount of High ISO noise reduction applied to the image. The camera offers you H, N, L, or Off settings, which are equivalent to the Shooting Menu > High ISO NR settings called High, Normal, Low, and Off.
- ***Color space*** – Allows you to change which Color space is applied to the image. You can choose from the camera's two Color space settings, sRGB or Adobe RGB. Adobe RGB is abbreviated as just Adobe in this setting.
- ***EXE*** – This simply means execute. When you select this and press the OK button all your new settings will be applied to a new JPEG image with a separate file number.

Now, let's look at the screens and steps involved with converting from NEF (RAW) to JPEG in-camera (see Figure 6-10 to Figure 6-21):

Figure 6-10. NEF (RAW) processing

1. Select NEF (RAW) processing from the Retouch Menu and scroll to the right (see Figure 6-10, image 1).
2. Select a RAW image from the list with the Multi Selector and then press the OK button (see Figure 6-10,

image 2). Now we'll look closely at each setting found on the screen shown in Figure 6-10, image 3.

3. Select one of the Image quality settings—FINE, NORM, or BASIC—from the Image quality menu (see Figure 6-11). FINE gives you the best possible quality in a JPEG image. Select the setting you want to use, and then press the OK button to return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

Figure 6-11. Image quality

4. Select one of the Image size settings—L = Large (4288×2848), M = Medium (3126×2136), and S = Small (2144×1424)—from the Image size menu (see Figure 6-12). Large gives you the biggest possible size in a JPEG image. Select the setting you want to use, and then press the OK button to return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

Figure 6-12. Image size

Figure 6-13. White balance

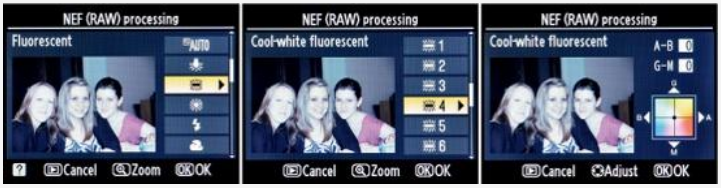


Figure 6-14. White balance – Fluorescent

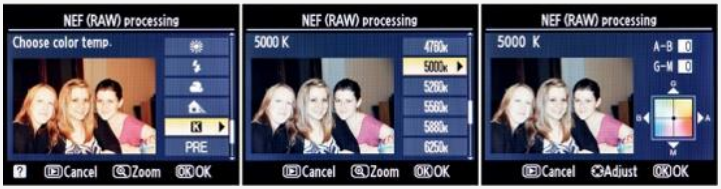


Figure 6-15. White balance – K or Choose color temp.

Figure 6-16. White balance – PRE or Preset manual

5. Select one of the White balance settings for your new JPEG (see Figure 6-13-Figure 6-16). You can choose from AUTO, Incandescent, Fluorescent, Direct sunlight, Flash, Cloudy, Shade, K-Choose color temp., or PRE – Preset manual (from a previous ambient light white balance reading). Please review the chapter titled **Chapter 10** for detailed information on each of these selections.

   There are some variations from Figure 6-13's basic screens when you choose Fluorescent, K, or PRE. Each of these settings has an additional screen of choices* that you must select from. The three screens are shown in Figure 6-14, Figure 6-15, and Figure 6-16. Here are explanations:

   * Fluorescent (see Figure 6-14) – You must choose from an additional screen of fluorescent types. There are seven of them, with names like Sodium-vapor, Warm-white, Cool-white, etc. Each has a number assigned to it. Figure 6-14, image 2, shows Cool-white fluorescent, which is number 4 on the list of seven fluorescent types. Afterward you'll move to the fine-tuning screen.

* K-Choose color temp. (see Figure 6-15) – This extra screen gives you a list of color temperatures to choose from. Remember that color temperatures change how the image color looks by warming it (reddish) or cooling it (bluish). You can choose from a range of color temperatures: 2500K to 10,000K.

* PRE-Preset manual – This lets you choose a past White balance reading from using the PRE method on a white or gray card in the ambient light in which you are shooting. See the chapter titled **Chapter 10** for information on doing PRE readings. You can choose from up to five previous PRE readings, stored in memory locations d-0 to d-4.

As you scroll through the list of settings, you'll be able to see the color temperature of the image change. Select the setting you want to use, and then press the OK button to return to the main NEF (RAW) processing configuration screen. You can fine-tune the colors of the individual White balance settings for this image by using the final screen shown in each of Figure 6-13-Figure 6-16 and changing the value in the color adjustment box with the Multi Selector. You'll see your fine-tuning adjustment change the color temperature of image.

If you don't want to fine-tune the White balance, simply press the OK button when you get to the fine-tuning screen. The camera will return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

6. Now you have an opportunity to lighten or darken the image by selecting an Exposure compensation value of +/-3 EV steps in either direction (see Figure 6-17). When the image looks just right, press the OK button to return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

Figure 6-17. Exposure compensation

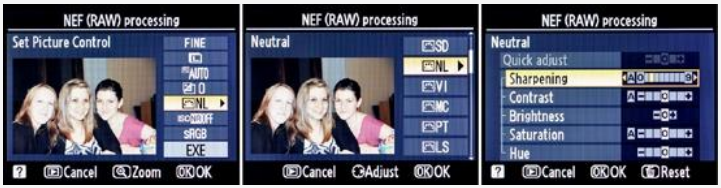


Figure 6-18. White balance – Choosing and adjusting a Picture Control

7. Next you can apply a Nikon Picture Control or one of your own Custom Picture Controls, if you've created any, from the list shown (see Figure 6-18). These controls make changes to how the image looks. You can make it sharper and give it more contrast, give it more or less color saturation, or even change it to monochrome.

In fact, you can even modify the current Picture Control's settings by using the final fine-tuning screen, as shown in Figure 6-18, image 3. Choose from SD-Standard, NL-Neutral, VI-Vivid, MC-Monochrome, PT-Portrait, LS-Landscape, or any of your custom controls (CS-1 to CS-9) that appear on the list.

If you want to fine-tune the image in the final screen, you can make changes with the Multi Selector. Scroll up/down to select one of the settings—Sharpening, Contrast, or Brightness, etc.—and left/right to modify the selected setting (-/+). If you've made a mistake and want to start over, just press the Delete button (garbage can) and the camera will pop up a screen that says, *Selected Picture Control will be reset to default settings. OK?* Choose Yes or No and press the OK button.

When the image looks just right, press the OK button to return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

8. If the image needs High ISO noise reduction, you can apply it now (see Figure 6-19). You have a choice of four settings: H-High, N-Normal, L-Low, or Off. Each of these applies more or less High ISO NR to the image. Choose one and press the OK button to return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

Figure 6-19. High ISO noise reduction

9. Color space lets you choose one of the camera's two color space settings (see Figure 6-20). You can select from Adobe or sRGB. Adobe is the same as Adobe RGB. Choose one and press the OK button to return to the main NEF (RAW) processing configuration screen. You can cancel the operation with the Playback button.

Figure 6-20. Color space

Figure 6-21. Saving the new JPEG

10. Now, scroll down to the EXE selection (EXE = Execute) and press the OK button (see Figure 6-21). The hourglass will show for a few seconds while the new JPEG is being created with your carefully crafted settings. An *Image saved* screen will show briefly, and then the new JPEG will be shown in a normal Playback screen. You can cancel the operation with the Playback button.

This is a nice way to create specialized JPEG images from NEF (RAW) files without using a computer. How much longer will it be until our cameras come with a keyboard, monitor, and mouse ports? They are computerized after all!

My Recommendation: This is a rather complex, multi-step function since you're doing a major conversion from NEF (RAW) to JPEG in-camera, without using your computer. You're in complete control of each level of the conversion and can even replace the camera settings with which you shot the original image. If you want to simply convert the image without going through all these steps, just scroll down to the EXE selection and press the OK button. That will convert the image with the camera settings you used to take the picture.

Resize (D300S only)

(User's Manual – D300S page 329)

The Resize function allows you to convert an image from a full-size 12.2 M (4288×2848) picture to a smaller one, with

four available megapixel sizes. This is only available on the D300S.

There are three selections involved:

- Select image – Allows you to choose one or more images for resizing.
- Choose destination – Lets you to choose a destination for the resized pictures.
- Choose size – You can choose from four available sizes:
  - 2.5 M, or 1920×1280
  - 1.1 M, or 1280×856
  - 0.6 M, or 960×640
  - 0.3 M, or 640×424

Let's examine the screens and steps for resizing images (see Figure 6-22-Figure 6-24):

Figure 6-22. Choose a destination

1. Select Resize from the Retouch Menu and scroll to the right (see Figure 6-22). Although it seems out of order, select Choose destination and scroll to the right. Select one of the card slots to be a destination for the resized

images and press the OK button. This selection will be grayed out if one of the memory card slots is empty.

2. Next, select Choose size and scroll to the right (see Figure 6-23). You'll see four available sizes, from 2.5 M down to 0.3 M. This choice is the actual megapixel size the image will be reduced to when you finally save it. Select one of them and press the OK button.

Figure 6-23. Choose a megapixel size

3. Next, choose Select image and scroll to the right (see Figure 6-24, image 1). You'll see six image thumbnails. Use the Multi Selector to scroll around in this group of thumbnails. Scroll up or down to see additional images, if there are more on the memory card. When you see an image you want to resize, press the Multi selector center button to set the image as the one to be resized. A tiny resize symbol will appear in the top
right corner of each thumbnail you set (see Figure 6-24, image 2, red arrow). You can select and set as many images as you'd like, and each of them will be resized.

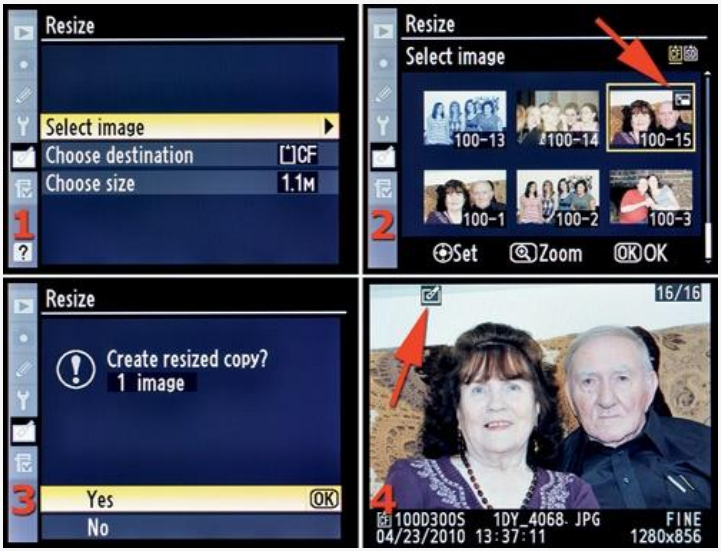


Figure 6-24. Saving the new JPEG

When all the images are set, press the OK button. A final screen will show asking you, *Create resized copy? N images*, as shown in Figure 6-24, image 3. Select Yes and press the OK button to create the resized image(s). The last image in the group of Set images will display. They'll look just like the originals except for the Retouch symbol in the top-left corner (see Figure 6-24, image 4, red arrow).

My Recommendation: I use this function when I'm in the field and want to make a small image to send via email. The full-size JPEG file is too large to send by some email systems. It's nice to have a way to reduce image size without having to find a computer. Please notice that this function does not reduce the image size by cropping, like the Trim function we

studied earlier. Instead, it simply reduces the image size in the same aspect ratio as the original, except it has a smaller megapixel size.

Edit Movie (D300S only)

(User's Manual – D300S page 64)

Edit movie gives you a two-step process to cut a section out of the middle of a D300S-created movie. Or you can simply remove a beginning or ending segment only. This is only available on the D300S.

There are two individual parts to the process—Choose start point and Choose end point—and you can choose to use only one of them. Each time you complete one of the start or end point choices, the camera saves the file as a new movie with a new file number. This tends to create a bunch of smaller movies on your memory card that you'll need to carefully delete, taking care that you aren't deleting the wrong one.

Let's look at the screens and steps used to remove a movie segment (see Figure 6-25):

Figure 6-25. Edit movie – Choose start point

1. Choose Edit movie from the Retouch Menu and scroll to the right.

2. Select Choose start point or Choose end point and scroll to the right.

3. Choose one of the available movies and then press the OK button.

4. The selected movie will show up on the Monitor and await your input. Press the Multi selector center button to start playing the movie. When you've reached the point at which you want to start or end the new movie (remove the frames before or after this point), press up on the Multi Selector, which will pause the movie.

Figure 6-26. Edit movie – Removing the front end of the movie (making the new start point)

5. A new screen will pop up a second or two after you pause the movie to allow you to proceed with cutting the starting or ending frames (see Figure 6-26, image 1). It asks the question *Proceed?* Yes/No. Select Yes to remove all frames up to this new start point. The new, shorter movie will now be saved (see Figure 6-26, image 2). You'll briefly see a screen that says *Done*, and then the new movie will appear on the Monitor.

6. You'll simply repeat the above steps for the other end of the movie (see Figure 6-25). All steps are the same for

Choose start point and Choose end point. Your movie must be at least 2 seconds long when you're done or the camera will refuse to cut any more frames, giving you the terse message *Cannot edit movie.*

My Recommendation: I think this process is slightly easier when executed from the Playback Retouch Menu. Try doing the above steps by bringing up the movie on the Monitor, pressing the OK button, and then following steps 1-6. The reason it's easier is that the Playback Retouch Menu presents fewer steps. When you cut the front end off the movie, it appears on-screen so that you can immediately cut the rear end off too by pressing the OK button and selecting the opposite side. Try it both ways—by the Retouch Menu and the Playback Retouch Menu. Just remember that it's a two-step process.

Side-By-Side Comparison

(User's Manual – D300S page 331; D300 page 342)

Side-by-side comparison allows you to compare an image you've retouched with its original source image. Interestingly, this function is not available on the Retouch Menu. You'll only find it on the Playback Retouch Menu.

Here are the screens and steps to compare the original and retouched image side by side on the camera's Monitor (see Figure 6-27):

Figure 6-27. Comparing original and retouched images side by side

1. Press the Playback button and find the image you want to compare (see Figure 6-27, image 1).
2. Press the OK button to bring up the Playback Retouch Menu.
3. Select Side-by-side comparison and scroll to the right (see Figure 6-27, image 2).
4. The original image will appear on the left, and one of its retouched children will show on the right (see Figure 6-27, image 3). You may have retouched an original image in more than one way, leading to multiple retouched copies. In that case, a tiny yellow arrow tip will appear above and below the retouched image (see Figure 6-27, image 3). This simply means that you can scroll up or down to see the other retouched images that sprang from the original.

My Recommendation: I often use this function when I want to compare images to which I've added a color cast so that I can see how they compare with the original. It's very convenient since you can choose the original or one of the retouched copies, from the Monitor and the camera is smart enough to place them in the proper position in the

Side-by-side comparison. You can tell an image is retouched by looking for the retouch symbol in the upper-left corner of the image. See Figure 6-27, image 1, which shows a retouched image as my choice for comparison.

My Conclusions

Nikon has given camera users who dislike computers a way to work with their images in-camera. While not as fully featured as a computer graphics program, it does allow you to do quick one-off conversions for convenience.

I didn't think this group of Retouch Menu functions would be all that useful to me when I first read about them. However, in the field I find myself using them more than I ever expected. Whether you use them often or not, it's good to know they are there for emergency use, isn't it?

Next, we'll move into the final menu system in the camera. It's called My Menu and may become very valuable to you as you learn how it works. It's a place to put often-used, favorite settings so that you can get to them very quickly. Let's see how My Menu, and its first cousin Recent Settings, works in our next chapter.

Chapter 7. My Menu and Recent Settings

Maine Coon Cat – Courtesy of Cindie Fearnall (*Gipsi*)

As you have read through this book and experimented with your camera, you've surely noticed that the D300(S) has a

large number of menus, screens, functions, and settings. When I took pictures of the camera's menus and screens for this book, I had over 1,000 images when done. That many screens can be somewhat complex to navigate. We need a shortcut menu for our most-used settings—a place to keep the functions we're constantly changing.

Nikon has given us two specialty menus in the D300S and one in the D300. My Menu is available in both cameras, and Recent Settings only in the D300S. These are both designed to give us exactly what we need—a menu that can be customized with only the most-used functions showing.

For instance, I often turn Exposure delay mode on and off. Instead of having to search through all the Custom Settings, trying to remember exactly where Exposure delay mode lives, I simply added that Custom Setting to My Menu. Now, whenever I want to add a l-second exposure delay after pressing the Shutter-release button so that mirror vibrations can settle down, I just go to My Menu and enable Exposure delay mode. I can do it quickly, and without searching, since I added it to My Menu.

> What's the Difference Between My Menu and Recent Settings?
>
> You can add up to 20 settings chosen from the Playback, Shooting, Custom Settings, Setup, and Retouch Menus to My Menu. Recent Settings will automatically show the last 20 settings you've modified in the other menus, but it's not configurable. The most important difference between the two menus is the level of control you have over what appears on the menu. My Menu is completely

customizable and does not change unless you change it, while Recent Settings simply shows the last 20 changes you've made to your camera's settings. Recent Settings will change every time you change a different setting in your camera. However, since it shows the last 20 changes, you ought to be able to find the ones you most often change somewhere in the list. The two menus are mutually exclusive and cannot appear on the D300S at the same time. One takes the place of the other when you select the Choose tab setting at the end of each menu and choose your favorite.

My Recommendation: Honestly, I rarely use Recent Settings. I prefer the control I get with my own personally customizable menu—My Menu. Recent Settings has very little flexibility since it's an automatically updated, camera-controlled menu system. You really can't do much in the way of configuring it. You'll just select and use it. On the other hand, My Menu is a personal collection of links to my most-used settings. It is completely configurable.

We'll consider both menus in this chapter, with heavy emphasis on configuring My Menu.

My Menu

(User's Manual – D300S page 333; D300 page 344)

My Menu is my menu!

I can add or remove virtually any camera setting found on one of the primary menus.

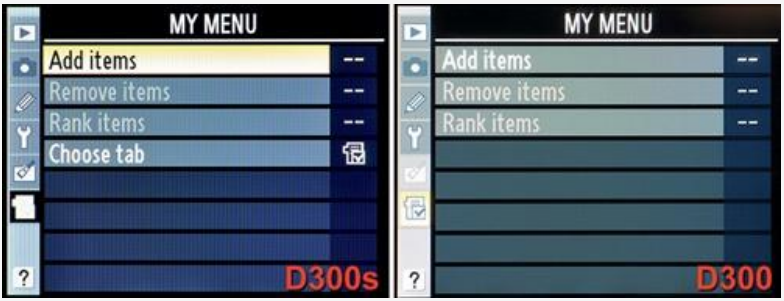


Figure 7-1. Blank My Menu screens for D300S and D300

When you first look at My Menu you'll see nothing but the selections shown in Figure 7-1:

- Add items
- Remove items
- Rank items
- Choose tab (D300S only)

Let's examine each of these menu choices in detail.

Add Items

To add an item to My Menu, you'll need to locate the item first. Search through the menus until you find the setting you want to add, and then make note of where it's located. You could do this from within the Add items menu, but I find that it's harder to locate what I'm looking for if I've not already confirmed in my mind where it lives. Is it under the Custom Setting Menu or the Shooting Menu, for instance?

Figure 7-2. My Menu – Add items

Once I've found the item I want to add, and made note of its location, I use the following steps and screens (see Figure 7-2-Figure 7-4):

1. Select Add items from My Menu. You'll notice that I already have Set picture control and Active D-Lighting added to My Menu (see Figure 7-2, image 1). Let's add something else.

2. Use the Multi Selector to scroll right and you'll find a list of menus to choose from. The Add items screen

shows all the menus available in the D300(S) except My Menu/Recent Settings (see Figure 7-2, image 2). Let's add one of my favorites, the Exposure delay mode function (see Figure 7-3).

3. Figure 7-3 picks up where Figure 7-2 left off. I've already looked and know that Exposure delay mode is under the Custom setting menu, so let's scroll down to it (see Figure 7-3, image 1), then scroll to the right.

Figure 7-3. Adding Exposure delay mode

4. We now see the Custom setting bank and Custom Settings a-f (see Figure 7-3, image 2). Scroll down to Custom Setting d – Shooting/display, and then scroll to the right so that we can select the actual Custom Setting we want.

5. Figure 7-3, image 3, shows the Exposure delay mode function that I wanted to add. All I have to do is highlight it and press the OK button. Once I've done that the D300(S) switches to the Choose position screens (see Figure 7-3, image 4, and Figure 7-4).

Figure 7-4. Choose position screens

6. Figure 7-4 begins where Figure 7-3 ends. Since I've already added a couple of other items to My Menu, I now have to decide in which order I want them to be presented. The new Exposure delay mode is on top, since it is the newest entry (see Figure 7-4, image 1). I think I'll move it down two rows and let Set Picture Control move to the top position.

7. To move the position of the selected item, I must simply scroll down. Exposure delay mode stays highlighted with a yellow box surrounding it (see Figure 7-4, image 2). As I scroll down, a yellow underline moves to the last position (see Figure 7-4, image 2, red arrow). This yellow underline represents the place to which I want to move Exposure delay mode. Once I've decided on the position and have the yellow underline in place, I just press the OK button. The screen pops back to the first My Menu screen, with everything arranged the way I desired (see Figure 7-4, image 3).

Remove Items

Now that we've figured out how to Add items, let's examine how to Remove items. I've decided that one of my items, Active D-Lighting, is not used often enough to warrant a spot on My Menu, so I'll remove it. Here's how:

1. Select Remove items from My Menu and scroll to the right (see Figure 7-5, image 1).

2. The Remove items screen presents a series of selections with check boxes. Whichever boxes I check will be deleted when I select Done (see Figure 7-5, image 2). You can check the boxes by highlighting the line item you want to delete and scrolling right. You can also simply press the OK button to place a check mark in a setting's box. I like to use the OK button method since trying to uncheck a selection by scrolling left does not work but takes you back to the My Menu screen. Pressing the OK button acts like a toggle and will check or uncheck a line item.

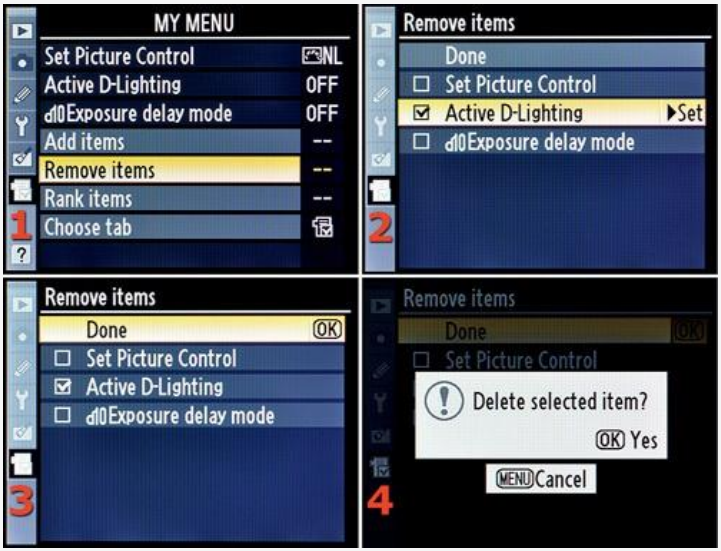


Figure 7-5. My Menu – Remove items

3. Once you've checked off the settings you want to remove, simply scroll back up to Done and press the OK button (see Figure 7-5, image 3). A small white box pops up and asks, *Delete selected item?*

4. Press the OK button again, and the setting is removed from My Menu. A box pops up informing you that the item has been deleted, and then the D300(S) switches back to the My Menu screen.

Rank Items

Ranking items works very similarly to positioning new additions in My Menu.

All the Rank items selection does is move an item up or down in My Menu. You can switch your most-used My Menu items to the top of the list. Use these steps:

Figure 7-6. My Menu – Rank items

1. Select Rank items from My menu and scroll to the right (see Figure 7-6, image 1).
2. Now you are presented with the Rank items screen and all the current My Menu items (see Figure 7-6, image 2). I've decided that Exposure delay mode is used more than Set Picture Control, so I'll move that to the top.

Figure 7-7. My Menu – Rank items – Move Set Picture Control to a lower position

3. I highlighted Set Picture Control and pressed the OK button and a yellow box appeared around that item. Move appeared at the bottom of the screen (see Figure 7-7, image 1).

4. Next, I scrolled down with the Multi Selector (see Figure 7-7, image 1). This action moved the yellow positioning underline down to the bottom of the list (Figure 7-7, image 1, red arrow). I pressed the OK button to select the new position and Set Picture Control appeared at the bottom of the list (see Figure 7-7, image 2).

5. The new position is what I wanted, so I pressed the Menu Button returned to the main My Menu screen (see Figure 7-7, image 3).

Choose Tab

Choose tab allows you to switch between using My Menu or Recent Settings. Both menus have the Choose tab selection as their last menu choice.

Here are the screens and steps to switch between these two menus (see Figure 7-8):

1. At the bottom of My Menu, select Choose tab and scroll to the right (see Figure 7-8, image 1).

Figure 7-8. Moving between My Menu and Recent settings

2. You'll now have a choice between My Menu

and Recent settings. Choose Recent settings and press the OK button (see Figure 7-8, image 2).

3. The Recent Settings screen will now appear, completely replacing My Menu on the main menu screen (see Figure 7-8, image 3). Notice that it has a Choose tab selection at the bottom, just like My Menu.

4. Select Choose tab and scroll to the right (see Figure 7-8, image 3). You'll now see the screen shown in Figure 7-8, image 4, which allows you to switch back to My Menu.

Clearly, this is a circular reference. You can use the Choose tab selection as a toggle between the two screens. When you do, one replaces the other as the last selection on the main menu screen.

My Recommendation: I think you can see how My Menu gives you nice control over a customized menu that is entirely yours. Configure it however you want by choosing from selections in the primary menus. My Menu will save you a lot of time when looking for your 20 most-used selections.

If you feel inclined to use Recent Settings, just remember that once you pass 20 camera setting adjustments, the next setting you use will jump to the top of the list, moving everything down by one position. The last item on the list will simply disappear.

Let's now take a look at Recent Settings in a little more detail. The next section only applies to the D300S since the D300 has no Recent Settings screen.

Recent Settings (D300S only)

(User's Manual – D300S page 337)

Recent Settings is very simple. This menu remembers the last 20 distinct changes you've made to your D300S camera. Each menu selection that was modified is stored in a temporary place called Recent Settings.

If you change something in your camera that's not already on the Recent Settings menu, it will be added to the menu, replacing the oldest change with your new one—at the top of the list—if there is no room left at the bottom (i.e., you've exceeded 20 items).

This can be a convenient way to find something you've changed recently but have trouble remembering where it is on the main menu systems.

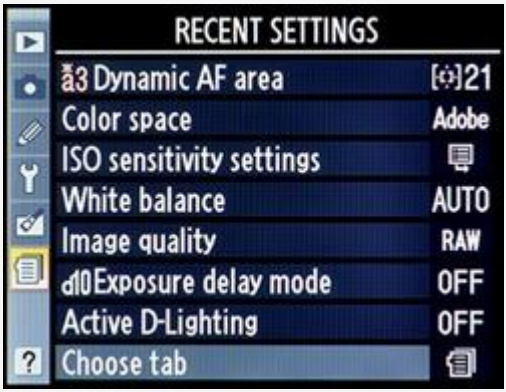


Figure 7-9. Recent Settings screen

My Recommendation: If you want a more permanent menu for your favorite changes to the D300S, you'll need to enable the My Menu system instead of the Recent Settings menu. Recent Settings are fine, but I want to directly control what settings I have quick access to without searching. My Menu is *my* choice!

My Conclusions

This is the last of the text-based menus we'll cover in the D300(S). We've been through a lot of menu screens in the last several chapters!

Now, let's examine the powerful Live View (Lv) mode found in the D300S and D300. No longer are we bound to using just the camera's Viewfinder—we can use the Monitor screen instead. Lv mode allows you to shoot at odd angles without hurting your back. Or, you can get extreme closeups with an appropriate macro lens and the excellent Contrast-detect autofocus in Tripod mode.

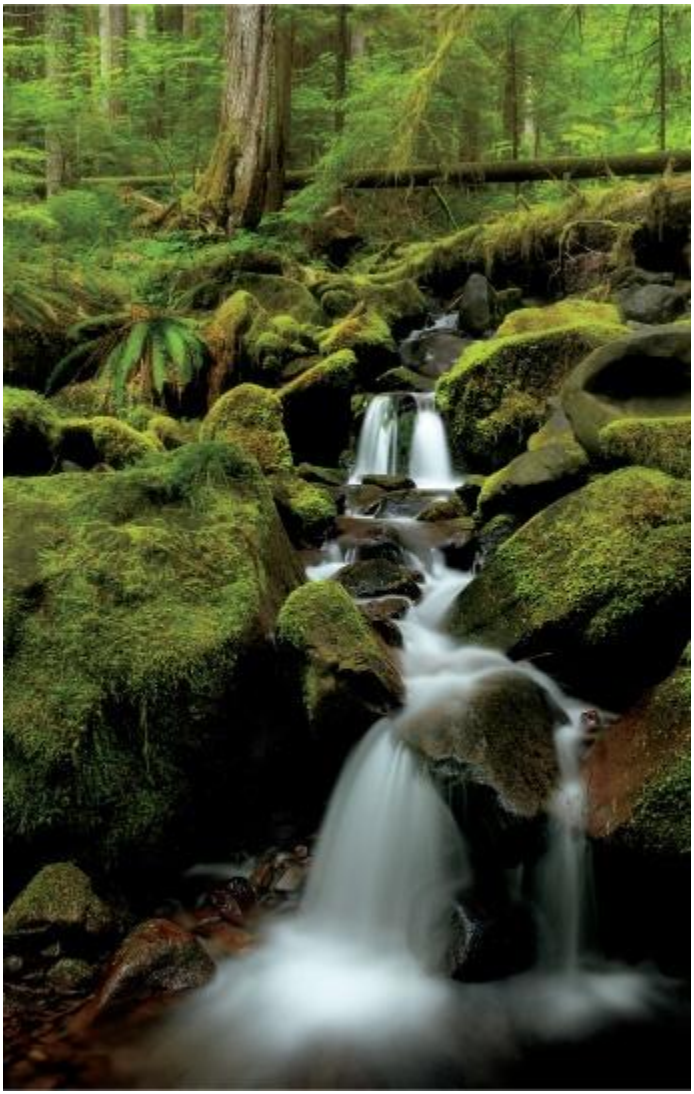
In addition, with the D300S, we can make very high quality 720p HD movies by using the new D-Movie mode.

Sample D300S Image

Before we move on, here's a highly manipulated sample "art" image from my Nikon D300S and Nikkor 16-85mm f/3.5-5.6G lens (see Figure 7-10).

Figure 7-10. Glenmore Mansion. Jefferson City, TN, USA. Five-image color HDR, tone mapped in Photomatix Pro 3 and converted to monochrome in Photoshop CS4 (channel mixer), with extreme red channel emphasis. Nikon D300S, AF-S Nikkor 16-8smm f/3.5-5.6 G ED VR lens at 16mm. Camera settings: Shutter speed – varies (five-exposures), Aperture – f/8, ISO sensitivity Lo 1.0, Picture Control – SD, Meter mode – Matrix, Exposure mode – Aperture priority auto

Chapter 8. Live View and D-Movie Modes



Sol Duc Valley Stream – Courtesy of Daniel Stainer (*spiritualized67*)

Live View is one of the new features that many old-timers love to hate. New DSLR users generally like to use it initially, since they are accustomed to composing on the LCD screen of a point-and-shoot camera.

Both types of users should reconsider Live View. An old-timer who is used to using only the Viewfinder to compose images might find that some types of shooting are easier with Live View. Point-and-shoot graduates may want to see if they can improve image sharpness by using the Viewfinder.

I've been using SLR, DSLR, rangefinder, and point-and-shoot cameras for over 40 years. When Live View first came out, my initial thought was "gimmick". However, after shooting macro shots with Live View, the ease of use has changed my thinking. When I need extreme focusing accuracy, I've found that the Tripod mode of Live View is superior to using the Viewfinder. If you're an experienced DSLR photographer, try shooting some macros with Live View. I think you'll find that your work improves, and your back feels much better too.

If you've come over from the point-and-shoot world with your new D300(S), then use Live View if it makes you comfortable, at first. However, please realize that it is difficult to make sharp images when you are waving a heavy DSLR around at arm's length while composing a picture on the Monitor. The extra weight of the DSLR will tire your arms needlessly. Learn to use the Viewfinder for most work and Live View for specialized pictures, as needed. Both image composition tools are useful.

This chapter is divided into two sections, **Live View Mode – Section One** and **D-Movie Mode – Section Two**. I grouped

these two camera functions together because D-Movie mode uses a form of Live View to make videos. Live View is for still images, while D-Movie is for videos.

First, in section one, we'll examine Live View since it applies to both the D300S and D300. Of course, the later D-Movie mode, in section two, only applies to the D300S, since the older D300 does not make movies. D-Movie mode users will want to know all about Live View since your movies will be shot while using Live View's Monitor.

Live View Mode – Section One

(User's Manual – D300S page 47; D300 page 79)

Live view mode (Lv) allows you to use your camera's Monitor to compose images instead of the Viewfinder.

On the D300S, you start Live View by pressing the LV button below the Multi Selector (see Figure 8-1, image 1).

On the D300, hold down the Release mode dial lock release button and rotate the Release mode dial to Lv; then press the Shutter-release button to start Live View (see Figure 8-1, image 2).

To stop Live View on the D300S, simply press the Lv button again. On the D300, stop Live View by pressing the MENU button.

There are two Live View modes available, with multiple screen types to customize Live View on your camera's Monitor.

Figure 8-1. Live View controls for D300S and D300

Live View's Two Modes

Live view mode has two distinct types, Hand-held and Tripod. You'll find them under the Shooting Menu > Live view mode setting.

Here are descriptions of how each mode works. I photographed the screens with the lens cap on (black background) so that you could easily see all the features.

Figure 8-2. Hand-held and Tripod mode screens

Normally, you'd see a subject behind all the symbols on the Monitor (see Figure 8-2):

- ***Hand-held*** (see Figure 8-2, image 1) – This mode is for those who want to use the Monitor to compose general images. This is sort of like a point-and-shoot image composition mode for the D300(S), since this is how point-and-shoot camera users are accustomed to taking pictures. Hand-held mode works best when photographing moving subjects or when framing angles that make it difficult to use the Viewfinder.

  It uses phase-detection autofocus, just like the Viewfinder, which requires the mirror to move down to get good focus. When you take a picture, the Monitor will black out briefly as the reflex mirror drops to focus and then the picture is taken. The image will appear on the Monitor for your review.

  You can move the AF point around the central 5 l-point area, just like when you use the Viewfinder while shooting in Single-point or Dynamic-area autofocus modes. If you use Auto-area AF, the central 51-point area is blank, since the camera decides which focus points to use. You can zoom in up to three times (3x magnification) with the Playback zoom in button before starting autofocus.

- ***Tripod*** (see Figure 8-2, image 2) –
  This mode uses contrast-detect autofocus, activated by the AF-ON button, to provide extreme focus accuracy. You can move a bigger red focus square to any location on the screen and then use the AF-ON button to get

autofocus. Once you have good focus, the red square turns green.

You are not limited to the central 51-point AF area, like in Hand-held mode. The screen does not black out while autofocus is active since the camera is focusing by detecting contrast changes at the pixel level on the image sensor. When you fire the shutter, the Monitor will black out briefly while the picture is taken.

Use this mode for slower shooting and when you need extreme autofocus accuracy. Contrast-detect autofocus is rather slow, but very accurate. You can zoom in to pixel-peeping levels (13x magnification) with the Playback zoom in button before starting autofocus. This is great for macro shooting since you can select very specific sections of the subject for focusing.

The AF-area modes do not apply when you are using Tripod mode. They are overridden by the bigger contrast-detect focus square. Be careful in this mode because the shutter can be released even if the image is not in focus.

Here are the screens and steps used to choose a Live view mode (see Figure 8-3):

1. Select Live view mode from the Shooting Menu and scroll to the right.
2. Select either Hand-held or Tripod mode.

Figure 8-3. Live view modes

3. Press the OK button to lock in the mode.

> Auto vs. Manual Focus in Live View or D-Movie Modes
>
> You can also use the Focus mode selector on the front of the camera to choose Manual mode (M) and then focus manually. Or you can set the M/A–M, A/M–M, or A–M switch on the lens (varies with the lens type) to M for manual focus in Live View or D-Movie modes. Setting any of the manual focus switches on the lens or camera to M immediately disables the autofocus system for Live View or D-Movie modes.

Most people can hear three distinct clicks when taking a picture in either Hand-held or Tripod mode. Two of them are made by mirror movement, and the final by the shutter firing. If you are inexperienced with Live View—and are using Hand-held mode—it is very easy to mistake the sound of the mirror slapping as the camera autofocuses for the shutter firing.

If you hold the Shutter-release button halfway down in Hand-held mode, the screen will go dark as the mirror moves

and autofocus happens. You can re-autofocus at any time in Hand-held mode by holding the Shutter-release button halfway down. You must press the Shutter-release button *all the way* down, and wait a moment, for the camera to take the image.

In order to get a picture in either of the Live View modes, listen for three distinct clicks as you hold down the Shutter-release button and the picture is taken. If you are using Hand-held mode and hear only one or two clicks, you may not be taking pictures. The main clue is whether the camera displays a still image after the clicks. Hold the Shutter-release button down all the way and wait a moment for the camera to take the image.

Once you take a picture in Live view mode, it appears on the Monitor. To return to Live View for more pictures, just press the Shutter-release button halfway down. I admit it can be a little confusing until you get used to the sounds and actions of Live view mode. When in doubt, hold the Shutter-release button down longer.

My Recommendation: You can use either of the Live view modes on or off tripod. I often leave my camera set to Tripod mode since I like the more flexible focus positioning and accuracy. I normally use Live View for macro (close-up) images, for which I especially need the extra accuracy and focus positioning capability. Tripod mode is not very good for any type of action shots, since the autofocus is much slower.

The only time I use Hand-held mode is when I want to shoot moving objects or around-the-corner images at arm's length. If I were shooting images in a war zone, I think I'd use Hand-held Live View mode and stick the camera around the

edge of the building to capture my image instead of sticking my head, glued to the Viewfinder, around the corner. It is also useful to shoot in Hand-held mode when reaching over the top of a crowd or below waist level without bending. Old-timers, give it a try!

Live View's Four Screens

There are four screens available in each of the Live View modes. You move between these screens by pressing the Info button repeatedly. Try it!

Using Figure 8-4 (Hand-held mode) and Figure 8-5 (Tripod mode) as a guide, take a look at each of these screens and what they do.

- ***LV Screen 1*** (Figure 8-4 or Figure 8-5, image 1) – This screen shows several extra (and maybe confusing) symbols that allow you to control various features like Monitor brightness (D300S and D300), along with microphone volume level and movie recording (D300S only). To simplify the symbols shown, I've zoomed in on this screen in Figure 8-6 so that we can look more closely at the various symbols (see Figure 8-6).

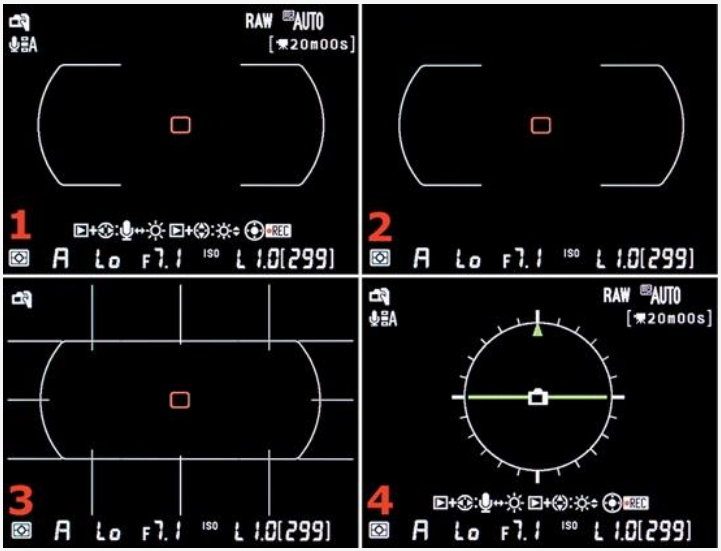


Figure 8-4. Live View – Hand-held mode

- ***LV Screen 2*** (Figure 8-4 or Figure 8-5, image 2) – This is a much cleaner screen with an almost blank area at the top and a single line of information along the bottom. You can see the autofocus type, which is determined by the Live View mode you have selected. Hand-held mode (Figure 8-4, image 2) shows the central 5 l-point autofocus area in big rounded brackets, with a tiny red AF point that can be moved around within the 51-point area only. Tripod mode (Figure 8-5, image 2) shows a bigger red focus square that can be moved to any point on the screen for autofocus. The informational line at the bottom is described in the text accompanying Figure 8-6.

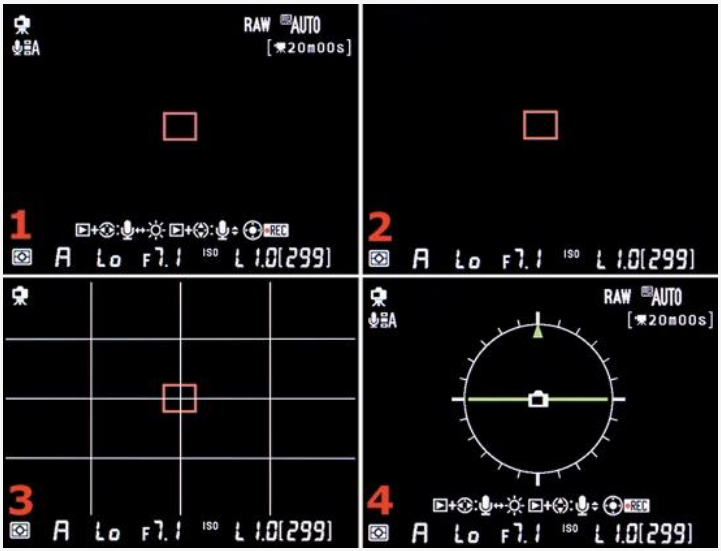


Figure 8-5. Live View – Tripod mode

- ***LV Screen 3*** (Figure 8-4 or Figure 8-5, image 3) – This screen is similar to the previous screen, except that grid lines are added. Hand-held mode (Figure 8-4, image 3) only shows the grid lines outside the 51-point AF area, while Tripod mode (Figure 8-5, image 2) shows the full set of grid lines across the entire screen. Use these grid lines to level your subject in the Viewfinder, as is necessary when photographing things like a horizon line or a tall, upright pole. Again, the informational line at the bottom is described in the text accompanying Figure 8-6.
- ***LV Screen 4*** (Figure 8-4 or Figure 8-5, image 4) – The final screen (D300S only) displays the new Virtual Horizon that allows you to level the camera in a

single-axis horizontal direction. If you are a private or commercial pilot, you'll feel right at home with this new tool since it resembles the artificial horizon you use to keep the wings level. All the other symbols are also displayed in this screen, as described in Figure 8-6.

Now, let's take a look at the various symbols found on some of the Live View screens. Many of these symbols will also show in the D300S D-Movie mode (see Figure 8-6). I photographed these screens with the lens cap on in order to allow you to better see the symbols on the screens without a picture in the background. Your screens won't be black.

On the screen shown in Figure 8-6, you'll see the small red letters—A through N—that I inserted to give you a guide. Refer to those letters in the upcoming discussion of each symbol:

- **A –** This symbol changes between a tiny hand holding a camera, which represents Hand-held mode, and a small camera with three legs sticking out below it, which represents Tripod mode. Tripod mode is shown in Figure 8-6.

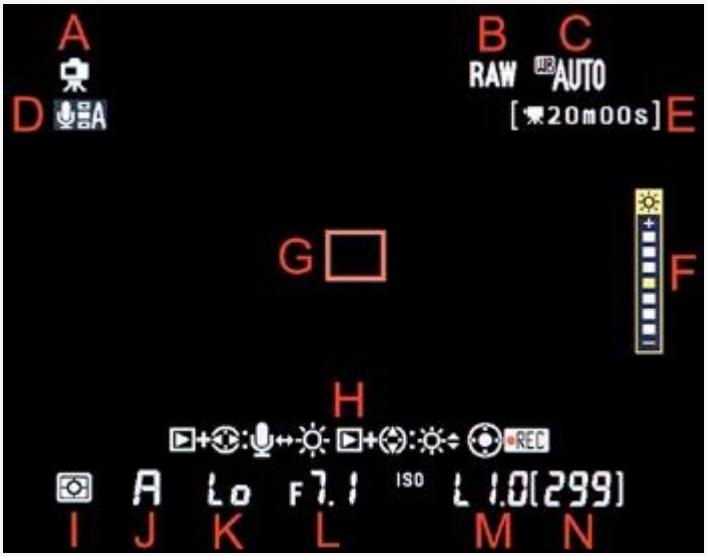


Figure 8-6. Live View – Understanding the symbols

- **B –** This symbol shows the current Image quality setting—RAW, TIFF, FINE, NORM, or BASIC, plus the three RAW + JPEG fine, normal, or basic modes (RAW+F, RAW+N, RAW+B). You can change between these Image quality settings by holding down the QUAL button on top of the camera and rotating the rear Main command dial.

- **C –** By holding down the WB button and turning the rear Main command dial you can scroll through the nine White balance settings. Various White balance symbols will be displayed, representing each of the WB settings. You can see the effect of each setting as you turn the Main command dial. The Monitor will change its colorcast as the camera moves through the WB settings.

Interestingly, when you have PRE White balance (PrE) selected, you can hold down the WB button and turn the front Sub-command dial to select one of the five stored PRE-measured white balances (d-o to d-4). See the upcoming chapter titled **Chapter 10** to better understand the PRE (PrE) method, and other WB settings.

- **D –** (D300S only) This symbol represents the volume control for the built-in mono microphone or externally mounted stereo mic. To use this setting, hold down the Playback button on the top rear left of the camera (normally used to view images), and press left on the Multi Selector. This surrounds the symbol with a yellow square, letting you know it is selected. Once you have it selected, you can hold down the Playback button and press up or down on the Multi Selector to scroll through the volume levels on the microphone. Your choices are A (Auto), 1, 2, 3, and Off.

- **E –** (D300S only) This symbol shows the minutes and seconds when you are recording a video in D-Movie mode. It isn't directly related to Live View, but since D-Movie mode uses the Live View display, it is ready for immediate use. If you press the Multi selector center button to start a video recording, you'll see this symbol start counting down the minutes and seconds. When you're recording a video, a big red dot followed by REC will flash in the upper-left corner of the Monitor.

- **F –** This symbol represents the Monitor brightness and is only seen when you press the Playback button in Live View mode. To access the setting—if the microphone volume control is selected on the D300S (see D)—hold down the Playback button and scroll right with the Multi

Selector. The D300 has no microphone volume control, so pressing the Playback button when in Live View mode simply gives you the Monitor brightness bar (F). Once the frame surrounding the vertical bar turns yellow, it is selected. You can now move the little yellow square up or down by holding down the Playback button and pressing up or down on the Multi Selector. Each increment (+/- 3) on the bar increases or decreases the Monitor's brightness—up for bright, down for dark. This *does not* change the brightness level of the image or video, just the Monitor's. In other words, this setting does not change the exposure.

G – This symbol lets you autofocus the camera and is different in the Hand-held and Tripod modes. In Hand-held mode, the AF point will be smaller than shown in Figure 8-6, which shows Tripod mode's contrast-detect autofocus symbol. You can move the contrast-detect autofocus square to any point on the screen, and even zoom in for extremely accurate autofocus with the Playback zoom in button. In Hand-held mode you can move the smaller AF point among the 51-points in the normal phase-detection autofocus grid.

- **H –** This line of symbols varies according to whether you are using a D300S or D300. In the D300S (shown in Figure 8-6) the symbols are a somewhat confusing description of how to execute D (mic volume) and F (monitor brightness) in our list. At the end of the line of symbols in the D300S is a reminder that you can press the Multi selector center button to record a video. In the D300, the first symbols represent the monitor brightness

(F). The next show that when you press the MENU button the camera will exit the Live View mode.

- **I –** This symbol reflects the current light meter mode you have selected—Matrix, Center-weighted, or Spot. The same three symbols are on the back of the camera, next to the Viewfinder's eyepiece. When you use the Metering mode selector surrounding the AE-L/AF-L button, it will change the symbol shown on the Live View screen. If you change meter modes while a Live View session is active, you'll notice that the symbol does not change immediately. It is not updated until you start a new Live View session.

- **J –** This symbol shows which exposure metering mode you are using—P, S, A, or M. You can change this value with the MODE button near the camera's Shutter-release button.

- **K –** This symbol informs you of the camera's currently selected shutter speed. It can vary between 30 seconds and 1/8000 second. Some examples: the symbol will show 30 for 30 seconds, 2 for 2s, 160 for 1/160S, and 8000 for 1/8000S. You control the shutter speed with the rear Main command dial. By the way, Lo—as shown in Figure 8-6, position K—appears when ambient light is too low to get a good exposure.

- **L –** This symbol shows you the current aperture setting (F number). This will vary with the minimum and maximum aperture for the lens mounted on the camera. For instance, my camera's AF-S Nikkor 16-85mm F/3.5-5.6G ED lens has a maximum aperture of F/3.5, which is shown here as F3.5 (F7.1 in Figure 8-6). The

minimum aperture is F/22, shown as F22. The aperture is controlled with the front Sub-command dial.

- **M –** This symbol shows the camera's current ISO sensitivity setting. This can vary from L 1.0 (100 ISO) to H 1.0 (6400 ISO). The camera's normal ISO range is 200 to 3200, with the extended Lo and Hi settings. If you have Custom setting b1 – ISO sensitivity step value set to 1/3 step, you will see this symbol change in 1/3 EV steps—or 1/2, or 1 EV step, if selected. You adjust the value this symbol reflects by holding down the ISO button on top of the camera (above the Release mode dial) while rotating the rear Main command dial.

- **N –** This final symbol shows the remaining number of images you can fit on the camera's memory card. If you are shooting in JPEG or compressed NEF (RAW), this number often does not reflect reality. Look at it as the minimum number of images that will fit. In reality, the actual count is often double this number. The camera estimates the value based on current image compression levels and is very conservative to protect you.

Keep in mind that Live View mode is the basis for shooting D-Movies. We will now move on into section two and see how D-Movie mode works for the D300S (only).

D-Movie Mode – Section Two

(User's Manual – D300S page 57)

I don't want to get into deep theory in this chapter because most people are not really interested in reading a technical manual. However, since the Nikon D300S is also a video camera, it's good to understand some basics—if for no other reason than to impress your friends and to make your videos look great. I'm sure you want that!

High-Definition (HD) Video

Before shooting your first D-Movie, you'll need to configure the camera for your favorite video frame size. We'll look into the actual configuration in a later section. For now, let's just discuss some basics.

Here are the available D-Movie frame sizes in your D300S:

- 1280×720 pixels (720p – 16:9 format HD) – 24 fps
- 640×424 pixels (3:2 format SD) – 24 fps (default)
- 320×216 pixels (3:2 format SD) – 24 fps

A video frame is much smaller pixel-wise than a normal still-image frame. While your D300S can create beautiful 12-megapixel still images, its best high-definition video image is just below one megapixel, at 921,600 pixels, or 0.9 megapixels.

Whoa! How can less than one megapixel be considered high definition (HD)? Simply because it matches one of the

HDTV's (High-Definition Television) broadcast resolutions. In the good old days of SDTV (Standard-Definition Television) that we all grew up watching, there was even less resolution. Would you believe that the old TV you have stored in the garage displays only 345,600 pixels, or 0.3 megapixels?

I've been talking about the number of megapixels, but that's not normally how HD devices are rated. Instead of the number of pixels, most HD information talks about the number of "lines" of resolution. There are several HD standards for lines of resolution. The standards that are usually the most used are 720p, 1080i, and 1080p. The "p" and "i" after the numbers refer to "progressive" and "interlaced". We'll talk about what that means in the next section.

The D300S's best D-Movie mode captures in 720p, which is a broadcast-quality HDTV standard. The "720" simply means that your camera captures and displays HD images with 720 lines of vertical resolution. Each of those lines can be 1,280 pixels long, which allows the D300S to match the 16:9 aspect ratio expected in HDTV. An older SDTV usually has an aspect ratio of 4:3, which is taller and narrower than the HDTV 16:9 aspect ratio.

Progressive vs. Interlaced

What's the difference between progressive and interlaced? Technically speaking, progressive video output displays the video frame starting with the top line and then draws the other lines until the entire frame is shown. The D300S displays 720

lines progressively from the top of what the imaging sensor captured to the bottom (lines 1, 2, 3, 4 ... 720, etc.).

Interlaced video output displays every even line from top to bottom, then comes back to the top and displays every odd line (lines 2, 4, 6, 8 ... 720, then 1, 3, 5, 7... 719, etc.).

Progressive output provides a higher-quality image with less flicker and a more cinematic look. I'm sure that's why Nikon chose to make the D300S shoot progressive video. Now, let's set up our cameras and make some D-Movies!

Camera Setup for Making D-Movies

Before you make your first movie, you'll need to set four separate things on your D300S:

- Setup Menu > Video mode – Encoding method, NTSC or PAL
- Shooting Menu > Movie settings – D-Movie Quality
- Shooting Menu > Movie settings – Microphone sound level
- Shooting Menu > Movie settings – Destination memory card

Which Video Encoding Method?

The D300S allows you to record using either the NTSC or PAL encoding method. These are two different video encoding systems. NTSC is the standard in North America, Japan, some of South America, and a few other areas. PAL is the standard in most of Europe, Asia, and Australia. There is

very little quality difference between the two encoding methods. Here are the Setup Menu screens and steps used to select the encoding mode (see Figure 8-7):

1. Select Video mode from the Setup Menu and scroll to the right.
2. Select NTSC or PAL encoding mode, per your hardware standard.

Figure 8-7. Video encoding mode

3. Press the OK button to set the mode and return to the Setup Menu.

You'll need to refer to the manual of your display device to determine which video encoding type it uses.

My Recommendation: If you live in the United States, you'll usually use NTSC. If you live in Europe, you probably use PAL. Check your display device's user's manual.

Selecting a D-Movie Video Quality

There are three basic D-Movie Quality settings available in the D300S. The first—1280×720—is for when you want to

shoot high-definition video for display on HD devices. The other two settings—640×424 and 320×216—are standard-definition modes for display on SD devices.

Here are the screens and steps used to select a D-Movie Quality setting (see Figure 8-8):

Figure 8-8. D-Movie Quality settings

1. Select Movie settings from the Shooting Menu and scroll to the right.
2. Select Quality and scroll to the right.
3. Select one of the three available settings.
4. Press the OK button to lock in the setting.

The Quality setting also changes how large the resulting movie is when it is stored on your computer's hard drive. It has been my experience that the D300S uses the following amounts of memory when recording videos. These are approximations and will vary with the subject matter's detail:

- ***1280×720 mode:*** 585 MB for a 5-minute video, 1950 KB per second. Full-length movie fits on a DVD or CD (for storage and later copying to a computer).

- ***640×424 mode:*** 248 MB for a 5-minute video, 992 MB for 20 minutes, 826 KB per second. Full-length movie can be stored on a DVD only.
- ***320×216 mode:*** 119 MB for a 5-minute video, 447 MB for 20 minutes, 398 KB per second. Full-length movie can be stored on a DVD or CD.

Remember, these values may vary greatly according to the complexity of the scene and how much motion is in the video. These are base values I found by videoing a medium-complexity subject with little movement. Your storage experience may vary.

The D300S's factory default video mode is set to 640×424 pixels (3:2 aspect ratio), which is good for keeping the video file sizes down somewhat. However, this is not an HD mode. If you want to make even smaller videos, you can choose 320×216 pixels (3:2 aspect ratio). Each of these two modes allows you to shoot up to 20-minute video clips. That is generally a sufficient length for many uses.

Video clips are limited in length to 5 minutes for high-resolution 1280×720 (16:9 aspect ratio or 720p). This is sufficient resolution to be displayed on an HD device, such as an HDTV.

The file format used by the D300S's video is the popular Audio Video Interleave (AVI) format. This is handled by virtually all computer movie players and is the default format for Microsoft Windows Media Player. The actual video frames recorded inside the AVI file are in Open DML JPEG video and Motion JPEG format.

A computer should display any of the video formats, as will a standard TV (SDTV). Any of the video modes, including the 720p HD 1280×720, will play on your SDTV through the included-in-the-box AV cable. The HD mode displays in the wide-screen format, with a black space at the top and bottom of the picture. Using an HDMI mini (type C) to HDMI standard (type A) cable, you can play full HD videos on an HDTV. An HDMI cable is not included with the camera. They are easily available online and in many electronics stores. We'll talk more about how to display video in a later section, which includes pictures of the cables.

My Recommendation: I like to shoot longer videos, so I often use the 640×424 mode. It has enough resolution that I can display it on my computer monitor, and it easily works on a standard television (SDTV) for grandma and grandpa to see. If their TV doesn't have RCA jacks to plug in the AV cable, their VCR usually does. The 20-minute length of 640×424 is usually sufficient for what I am shooting, and displays full-screen on an SDTV.

If I know I can get by with a 5-minute video, I may switch to 720p HD mode (1280×720), especially if I am shooting a video of some spectacular place. HD video will display in wide-screen format on an SDTV directly from the camera.

Since the segment length is limited to 5 minutes in the HD 1280×720 mode, the file size is not a big concern. It should fit on a standard CD. If you want to use the 640×424 mode to send files to friends on a CD, just remember to limit your video length to about 12 minutes, 10 to be absolutely safe.

A full-length 20-minute segment at 640×424 will not fit on a CD. A 20-minute segment at 320×216 will fit on a CD.

Dealing with Sound on D-Movies

Sound recording on the D300S is accomplished either with the monaural sound pickup mic on the front of the camera or with an optional stereo mic that will plug into the camera's stereo sound port.

The built-in mono mic looks like three tiny holes in a straight line just below the D300S logo (see Figure 8-9, image 1). Be careful about accidentally covering the microphone with a finger, or you will have very muted sound. Also, be careful about letting wind blow directly on the mic when recording since that might cause a rushing noise that interferes with the sound you are trying to record.

Figure 8-9. Mono sound recording mic and speaker

The video's sound is output during playback through a small speaker on the bottom rear of the camera, right below where you place your thumb when holding the camera (see Figure 8-9, image 2). You'll see nine small holes in a circle. This little speaker can put out an amazing amount of volume.

In Figure 8-10, you can see the stereo mic port under the Connector cover (rubber flap) on the side. The D300S offers

the ability to plug in an optional stereo microphone. It disables the built-in mono mic and overcomes some of its limitations. There are several microphones available for the D300S, including a few that mount onto the camera's Accessory shoe like a flash unit does. You can choose your favorite at online camera stores. The one most often pictured in D300S videos and advertisements is the Rode Stereo Video Mic X/Y Condenser Microphone, which retails for around $250 USD.

Figure 8-10. Stereo MIC port under Connector cover

In order to record sound in sync with your video, you'll need to make sure the Microphone setting is enabled on the D300S. Using the Shooting Menu screens shown in Figure 8-11, you can select from three volume levels—Low (1), Medium (2),

or High sensitivity (3). You can also select Off or Auto. Auto lets the camera decide which sound recording level best fits the situation. Here are the screens and steps used to choose a sound level for recording (see Figure 8-11):

Figure 8-11. D-Movie Microphone sensitivity

1. Select Movie settings from the Shooting Menu and scroll to the right.
2. Select Microphone and scroll to the right.
3. Choose one of the four available sensitivity settings, or off.
4. Press the OK button to lock in the your choice.

Choosing a Destination for Video Recordings

The D300S allows you to choose whether you'd like to save the videos you create on your CF card or your SD card. It also gives you an estimate of available video recording time available for each card. Here are the screens and steps to choose one of the memory cards as a Destination (see Figure 8-12):

Figure 8-12. D-Movie Destination card slot

1. Select Movie settings from the Shooting Menu and scroll to the right.
2. Select Destination and scroll to the right.
3. Select one of the two memory card slots, paying attention to how much recording time is available at the camera's current video frame size. I have two 8 GB memory cards in my D300S, so the time is approximately the same (see Figure 8-12, image 3). Both of my cards offer a little over 38 minutes of recording time at the 1280×720 (3:2) frame size selected under Movie settings > Quality.
4. Press the OK button to lock in the slot selection.

Recording a Video with Your D300S

Now let's look at the process of recording a video. It's rather simple! There are five steps, as shown in the screens and list below (see Figure 8-13):

Figure 8-13. D-Movie external camera controls

1. Turn the camera on and remove the lens cap.
2. Press the LV button on the back of the camera (see Figure 8-13, image 1).
3. Using the Multi Selector, move the little red focus square to an appropriate part of your subject. Pre-focus the camera on your subject by pressing the AF-ON button until the little green square stops flashing (see Figure 8-13, image 2).
4. Press the Multi selector center button to start recording (see Figure 8-13, image 3).
5. When you are finished, press the Multi selector center button again to stop recording.

Amazingly, that's all there is to it. You have a cool video camera built into your still camera. It is available with the press of three buttons: LV, AF-ON, and the Multi selector center button.

In most cases, unless you really want to try to control the camera, just shoot your video and enjoy what you captured. The camera will make a good exposure in almost all circumstances.

Using Camera Controls during a Video Recording Session

You can refocus the camera at any time during the video recording session by moving the little red focus square to an appropriate place on the screen and then pressing the AF-ON button until the focus square turns solid green (stops flashing). If you are using the camera's built-in microphone, be aware that the video will pick up the sound of the autofocus system in action. As the autofocus motor runs, it transmits vibrations to the camera body that are easily heard in the video. Many people switch to an external mic to overcome this issue, or simply turn off autofocus and focus manually.

The actual recording of the video is an automated process. Your camera does not give you much control over exposure. In a sense, the video system is like the Auto exposure mode—what you see is what you get. The camera decides how to deal with changes in exposure, motion, etc.

You can adjust many controls endlessly, and the camera will act like the values are changing, but it will not affect the video. However, there are a few controls that will modify the video recording.

You can use the Exposure compensation button to add or subtract brightness from the video while the camera is recording. You can also hold down the AE-L/AF-L button to keep the video exposure level consistent as you pan past a bright window. This prevents the sudden darkening of the video when the lens sees a lamp, bright light, or window.

You can select the aperture you want to use during the recording if you use Aperture priority auto mode (A) and preselect an aperture, such as F/8. The camera will use that aperture for the entire video. Once you've started shooting a video, the lens aperture does not change. The camera adjusts the light sensitivity of the sensor to correct for variations in ambient light.

You cannot change the aperture or shutter speed during a video, even though you can change the aperture and shutter speed values on the Monitor with the Command dials. Select an aperture before you start your video and you'll have control over the depth of field during the video.

Since the camera records video at 24 frames per second and uses an electronic rolling shutter, the mechanical shutter speed has no meaning during a video recording session.

You can also control certain aspects of the "look" of the video. Let's see how.

Using Picture Controls

You can use the included Nikon Picture Controls, or even your own Custom Picture Controls, to control the "look" of your D-Movies. I'm not going to go into a great deal of information here on using or modifying picture controls, since this subject is covered very well in other chapters. However, once you understand them, and have modified a couple, you will realize that your videos will benefit from different picture controls.

For instance, let's say you are shooting a video on an overcast, low-contrast day, and you want to add some snap to

your movie. You can simply pre-select the Vivid Picture Control, which will saturate the colors and darken the shadows.

Or, you might be shooting on a very high-contrast, sunny day and want to tone down the contrast a bit. Simply pre-select the Neutral Picture Control, which will open up the shadows and extend the dynamic range of the sensor for a lower-contrast look.

Maybe you are shooting a video of a lovely colorful autumn scene and want to maximize the colorful look. Simply pre-select the optional Landscape Picture Control (free download from Nikon) and your video will be optimized for beautiful scenery.

Just as with the aperture, you must select the Picture Control before you start recording the video. Refer to the section called **Set Picture Control** in the chapter titled **Chapter 3** for instructions on how to select or modify the various Picture Controls. Okay, you've taken some cool videos; so let's see how to view them.

Displaying D-Movies

Now the fun begins! The whole point of this chapter is to allow you to capture some great videos. There are three ways to play back one of your cool D-Movies from the camera itself:

- Play it back on the camera's large LCD Monitor.
- Use the included-in-the-box AV cable and connect the camera to an SDTV.

- Use an HDMI cable that you've purchased to connect the camera to an HDTV.

Let's talk about each of these three display methods.

Displaying a D-Movie on the Camera LCD Screen

The method used to view a movie on the D300S's Monitor is simplicity itself, just like capturing a video. Here are the steps:

1. Press the Playback button to display images on the Monitor. It's the same button you use to look at a series of your pictures and is found on the top-left back of the camera.
2. Locate the video you want to replay by scrolling through your images and videos with the Multi Selector.
3. When the video appears on the camera's Monitor you'll be able to identify it by three signs: a small D-Movie icon and a minutes-and-seconds counter at the top of the screen and the word Play at the bottom of the screen. The image you see is the first frame of the video (see Figure 8-14).
4. Press the Multi selector center button and the video will start playing.

Figure 8-14. Viewing a video on the Monitor

The Monitor on the D300S is big enough for several people to enjoy one of your videos. Don't be afraid to show off a bit since your camera creates excellent high-resolution videos.

Displaying a D-Movie on a Standard Definition TV (SDTV)

You can plug in the standard AV cable that was included in the box with your D300S and display videos directly on your SDTV. The AV cable looks like the one shown in Figure 8-15.

This AV cable has a standard "mini stereo" black plug that you'll insert into your D300S and two RCA jacks, yellow and white. The yellow jack carries the video signal, and the white jack carries the mono sound.

Figure 8-16 shows the port on the side of your D300S where you'll insert the AV cable's black plug. Open the rubber flap

to find the small round A/V OUT port. Be careful that you don't insert the black plug into the MIC port accidentally. The A/V OUT port is on top (see Figure 8-16, red arrow).

Figure 8-15. A/V cable for connecting to an SDTV

Here are the steps to display a video on your SDTV:

1. Turn your camera off temporarily. I never like plugging things into live devices. It may not hurt it, but why take a chance? A little 50 K-volt static spark on a live electronic device often results in a dead electronic device.

Figure 8-16. A/V OUT port

2. Open the rubber flap on the left side of your D300S and insert the A/V cable mini stereo plug into the A/V OUT port (see Figure 8-16).

3. Insert the RCA jacks into their respective ports on the display device. Be sure to match the colors—yellow is video, white is sound. If your SDTV has no RCA jacks, feed the signal through an attached VCR or DVD player.

4. Set your TV to channel 3, which seems to be the standard for displaying video. If channel 3 doesn't work, try 4. Consult your TV's manual if those don't work. They should!

5. Some TVs require you to press a button on the remote that puts the TV into video mode. This drove me crazy at

first, since I had everything hooked up and no video would show on my TV. I left the room and was about to give up when my sweet wife called from the living room, "Darrell, I figured it out! I found a TV/Video button on the remote". After pressing that, it worked fine. Thank goodness for wives!

6. Turn on the camera and press the Playback button; then locate the video you want to show off.

7. Press the Multi selector center button to play the video on your TV, or record it on your VCR or DVD burner.

I've found that any of the three available video Quality modes will display just fine on my older SDTV. I was surprised when the 720p HD mode video played (1280×720). It used the wide-screen format with a black space at the top and bottom of the screen. The 640×424 mode video filled the whole TV screen.

You'll enjoy playing video for your family and friends on their TVs. The screen is big enough to see things well, and the video quality is good too.

Displaying a D-Movie on a High Definition TV (HDTV)

This mode works like the SDTV mode above, except that you will display your 720p HD videos in their native size and format, full-screen on an HDTV. You'll need an HDMI cable with a mini HDMI (Type C) end to insert into your D300S, and the other end will have to match your HDTV's HDMI port, which is usually HDMI Standard (Type A). We'll talk

more about the cable specs in a moment, but first let's discuss your camera's HDMI output frequencies.

Before you attempt to connect your Nikon D300S to your HDTV, be sure that you've correctly configured your HDMI output to match what your HDTV needs, or you won't get a picture. Use the Setup Menu > HDMI setting to select a specific output type, or just select Auto so that the camera and HDTV can figure it out for you. Here is a list of formats supported by your camera:

- Auto – Allows the camera to select the most appropriate format for displaying on the currently connected device
- 480p (progressive) – 640×480 progressive format
- 576p (progressive) – 720×576 progressive format
- 720p (progressive) – 1280×720 progressive format
- 1080i (interlaced) – 1920×1080 interlaced format

Here are the screens and steps to select an HDMI output format (see Figure 8-17):

1. Select HDMI from the Setup Menu and scroll to the right.

Figure 8-17. HDMI output format

2. Select one of the five available modes. (Not sure? Select Auto!)
3. Press the OK button.

Figure 8-18. HDMI mini and standard cable ends

Now your camera is ready to output video on a compatible HDTV. Figure 8-18 shows what compatible HDMI cable ends look like. Unfortunately, you'll have to purchase an HDMI cable, since this is not included in the box with your D300S. You'll need to use a mini HDMI (Type C) to HDMI Standard (Type A) cable. And, of course, you'll need to plug your HDMI cable into the correct port on the D300S. Here's a look at the port you'll need to use with your HDMI Mini (Type C) connector (see Figure 8-19).

Figure 8-19. Mini HDMI port on D300S

Once plugged in, here are the steps to display a video on your HDTV:

1. Turn your camera off temporarily. Why take a chance on blowing up your camera from a static spark?
2. Open the rubber flap on the left side of your D300S and insert the mini HDMI (Type C) cable end into the HDMI port (see Figure 8-19).
3. Insert the HDMI Standard (Type A) cable end into one of your HDTV's HDMI ports. (Both video and sound are carried on this one cable.)
4. Your HDTV may have multiple HDMI ports, and you may have other devices connected, like a cable box or

satellite receiver. When you plug the D300S's HDMI cable into your HDTV, be sure to select that input or you won't see the D300S's video output. You may have to select the input from your remote or use another method. If in doubt, check your HDTV's manual. (If your TV only has one HDMI port, please ignore this step.)

5. Turn on the camera and press the Playback button; then locate the video you want to show off.

6. Press the Multi selector center button to play the video on your HDTV.

The Nikon D300S can interface with both progressive and interlaced devices. The HDMI display will take the place of the small Monitor on the back of your D300S, which will turn off as soon as you connect an HDMI device.

My Recommendation: Unless you are heavily into HDMI and understand the various formats, I would just leave the camera set to Auto. That allows the D300S to determine the proper format as soon as it's plugged into the display device and the HDMI input is selected—if the TV has multiple ports.

Limitations in D-Movie Mode Video Capture

Now, let's look at the limitations of the camera's implementation of video capture. No multi-use device can have all the features of a dedicated device. The D300S has some limits on how it captures video.

The D300S uses a CMOS sensor to record video. This type of sensor uses a rolling shutter and has three potential issues that we need to discuss: skew, wobble, and partial exposure. We'll discuss each of these in some detail in the next section.

How the Rolling Shutter Works in D-Movie Mode

Since video is captured at 24 frames per second (fps), the D300S has an electronic shutter in addition to the normal mechanical shutter.

Have you ever used your D300S in Continuous release mode where you are capturing up to seven or eight still images per second? The mechanical shutter activation combines with mirror movement to make this cool "chicka-chicka-chicka" machinegun sound that causes passersby—with their little point-and-shoot cameras—to look at you in awe. However, you don't hear that sound when using the D-Movie mode, do you? That's because your D300S does not use the mechanical shutter when shooting movies. If it did you would wear the camera's shutter out with only an hour or two of video capture. Remember, the camera captures video at 24 fps. An hour of video requires 86,400 frames at that speed. You would quickly exceed the tested lifetime 150,000-image capacity of the mechanical shutter.

Instead, the camera uses its electronic shutter and turns the sensor's pixel rows on and off, as needed, in a scan from top to bottom. In other words, the camera records each video frame by scanning it—one line at a time—from top to bottom. This is called a rolling shutter. Not all parts of the image are recorded at exactly the same time! It can produce a skewed and/or wobbly video when filming rapidly moving subjects like a race car or flying bird.

Rolling shutters are used by video cameras that have CMOS sensors, like the Nikon D300S. Most dedicated video cameras have CCD sensors, with global shutters that do not scan the

image. They are mostly immune to the effects we are about to discuss.

Here is a list of the effects that can be experienced in extreme circumstances when using a CMOS sensor's rolling shutter:

- ***Skew –*** The image leans in one direction or another as the camera or subject moves. This is often seen at the edges of buildings and other static objects.
- ***Wobble –*** This effect is harder to describe. The whole image wobbles in a strange way. It looks like the top of the image is out of sync with the middle and bottom of the image. Since video is a moving picture, the whole video can wobble back and forth in a very unnatural and dizzying way.
- ***Partial Exposure –*** If another camera's flash goes off during the shot, the burst of light may only be present for some of the rows of pixels in a particular frame. The top part of the frame may be brightly lit by the flash, while the bottom part appears dark. The partial exposure appears as a bright band in one or a few frames, depending on how long the brighter light lasts. Some older forms of fluorescent light have slow ballasts and can cause the video to have a series of moving bands as the light flickers. Our eyes can't see it, but the fast video captures it well. If you are shooting images of an ambulance with its light flashing, it too can cause banding. Anything that has intense bursts of light for short periods may cause partially exposed bands to appear in the video.

To understand skew and wobble better, let's compare our camera to a desktop scanner. It works in a similar way. If you

place a paper document on a scanner and press the scan button, you'll see the little row of light under the glass travel from the top of the document to the bottom as it records one line at a time. At the end of the scan, there is a copy of the document in your computer's memory that can be saved to the hard drive. You usually put the scanner's lid down on a paper document to hold it flat and keep it from moving.

Now, let me ask you to imagine something. What if you were scanning a paper document on your desktop scanner and halfway through the scan you moved the paper a little? The top part of the scan would look normal, since it was already captured by the scanner's sensor, but the bottom part of the scan would be at a different angle than the top part. You could say that it is "skewed" away from the original angle. This is an example of the skew issue we mentioned before.

Or, what if you grabbed the paper and rotated it back and forth all the way through the entire scan? The final scanned document would look like a series of zigzags, with some parts at one angle and other parts at a different angle. The end result would not be very nice, would it? This is an example of the wobble issue I mentioned above.

The D300S records video in a similar manner, except it is much faster than a scanner. It records a frame of video in 1/24 second, or 24 fps. Since the Nikon D300S scans the image the lens sees at 24 fps, there's not a problem in most cases. Most movement is too slow to be zigzagged (wobble) or off-angled (skew).

Skew and wobble become especially evident when a person is walking and videoing at the same time. The subject of the video is moving, and the person taking the video is moving

too. These combined movements can be enough to cause the strange wobbly look in the video. I call this the "jellywobble effect". Like a bowl of Jello, your video looks like it is wobbling. What can you do?

Avoiding the "Jellywobble Effect"

Primarily, you have to be careful not to allow too much camera movement. It truly is best to use the D300S on a nice fluid-head video tripod if you want great results. I've found that Nikon's vibration reduction (VR) lenses help when you don't want to use a tripod, since they stabilize the camera a little. VR won't help much if you're walking while videoing, since the camera movements are often too great for the VR system to overcome. If you're standing quietly and doing your best to hold the camera perfectly still, it will help overcome small movements caused by your heartbeat and breathing.

This is one of the main differences between a dedicated video camera and a hybrid like the D300S. Most true video cameras use a CCD sensor instead of a CMOS sensor like the D300S has. A CCD sensor does not have a rolling shutter but uses a global shutter instead. Global shutter simply means that a dedicated video camera does not scan the image one line at a time. It uses the whole sensor at once to grab the image, not individual lines of the sensor. There are some newer low-cost video cameras on the market that use a rolling shutter, but the better video cameras use a global shutter.

This is probably the worst problem we'll discuss concerning D300S video. True videophiles will turn up their noses at a rolling shutter. They'll buy a dedicated video camera with

three separate CCD sensors—one for each basic RGB color—and nice global shutters for no jellywobbles. And they'll pay several thousand dollars for the privilege of owning that equipment.

You, however, realize that the D300S is primarily a very high-quality still camera with added video capabilities. Since video is combined with still-image capability, you'll have both with you when carrying your camera. You'll probably be standing in a superstore parking lot one day, when an alien spacecraft just happens to land. You'll get both still images and cool video from the same camera. So what if in your excitement while running from the alien's heat ray, you get a few jellywobbles in your video? One of the rules for getting great video is having a video camera with you. With the D300S, you have one at all times—with no extra effort. You do keep your camera with you, just in case?

My Recommendation: Try to hold your camera still and any jellywobble effects will be greatly reduced. Use a tripod when you can, or even a VR lens. Anything that helps stabilize the camera will give you much higher-quality video.

My Conclusions

To conclude this chapter, I will ask a series of questions and then answer them (my opinion, yours may vary). Then I'll offer some advice on movie editing software.

How well does D-Movie mode work?

- It works quite well, is easy to use, and is always with you when you have your Nikon D300S in your bag.

What are the pros and cons of using the D300S compared to using a regular video camera?

Pros:

- No need to carry another video camera and bag.
- Excellent image quality.
- Shallow depth of field for cinematic look.
- Huge variety of lenses available for various effects.
- Picture Controls give the video an interesting "look".
- Video clips are immediately usable on your computer.
- People don't know you are videoing when using the D300S.

Cons:

- CMOS rolling shutter causes skew, wobble, and partial exposure.
- Lack of detailed control over the camera's functions.

- Short 5-minute video clips in HD mode.
- Limited storage on memory cards.

Can the D300S's D-Movie mode replace a dedicated video camera?

- Yes and no. The fact that it's always with you means that you have it to take video when you otherwise wouldn't. On the other hand, a dedicated video camera will record for hours and hours without stopping. And, since a normal video camera usually has a CCD sensor with a global shutter, you have no rolling shutter effects. You'll have to help me on this one. What do you think?

Video Editing Software

If you've already been shooting videos and editing them on your computer, you probably won't need much advice. However, if you're new to digital movie shooting and editing, you need to know that there are several great programs out there that allow you to create cool movies with intros and effects, including some "free" ones.

Here is a list of excellent editing software that you have to pay for. Most sell for less than $ 100 USD:

- Adobe Premier Elements
- Corel VideoStudio
- Roxio Creator
- CyberLink PowerDirector
- Nero

Then, my favorites, a list of freeware or shareware video editing software that you can download online:

- Microsoft Windows Movie Maker (easiest to get since it is built into Microsoft Windows XP Service Pack 3 or is available as a free download and is easy to use; Google "Download Windows Movie Maker")
- Apple iMovie – Free if you buy a new Mac
- Avid FreeDV – Available for both PC and Mac
- Wax
- Zwei-Stein

My Recommendation: If you are using a PC, try the Windows Movie Maker. It's the one you've seen advertised on TV where the seven-year-old is assembling movies and pictures into a presentation. If you use a Mac, buy a new one and get iMovie, or check to see if you already have it on your newer Mac. You can purchase it from Apple if you don't. Both programs are easy to use. Google the names of the free stuff and give them a try too.

I am well pleased with my D300S's D-Movie mode. I have true "video on demand", and I use it often. When I go up into the ancient Great Smoky Mountains, I can now take great still images and set my D300S up on a tripod by the many rivers and waterfalls for some great, relaxing home videos. Later, I can assemble them into a longer presentation, combined with music for my family and friends to enjoy. Having video in our DSLR cameras will revolutionize photography as we know it. Since your D300S has excellent HD video, you have a head start.

Go make some great videos!

Chapter 9. Metering, Exposure Modes, and Histogram

Father and Son – Courtesy of LaDonna France Huizinga (*Cookies35*)

My first Nikon was an FM back in about 1980. It used a basic center-weighted meter, and everything else was completely manual. In a way, I miss those simple days of old.

I became a proponent of digital SLRs back in August of 2002 when I bought my first serious DSLR, the Nikon D100. I left the film world in a hurry and never looked back. I rejoiced so much in Nikon digital imaging that I gained the nickname of Digital Darrell in the Nikonians.org community. Later, I bought a D200 and my rejoicing became even more exuberant.

Fast-forward a few years and I now find myself with the most accurate and powerful DSLR I've ever owned. Yep, it's the same one you have, the Nikon D300/D300S. I also own a Nikon D2X, but recently it stays in the camera bag as a backup to my D300S. Yes, the camera is that good!

The images from the D300S or D300 are simply superb, thanks to the flexible exposure metering systems, exposure modes, and histogram capabilities.

Metering Systems

(User's Manual – D300S page 102; D300 page 102)

The basis for the Nikon D300(S)'s exposure meter is a 1005-segment RGB sensor that meters a wide area of the frame. When used with a G or D Nikkor CPU lens, the camera can set exposure based on the distribution of brightness, color, distance, and composition. Most people

leave their D300(S) cameras set to Matrix metering and enjoy excellent results. Let's look more closely at each of the Nikon D300(S)'s exposure meters.

Figure 9-1 shows the exposure Metering selector set to Matrix metering mode. You can turn the small ring surrounding the AE-L/AF-L button to one of the three settings. The top setting is for Center-weighted metering mode, the middle is Matrix metering mode, and the bottom is Spot metering mode.

Figure 9-1. Metering selector set to Matrix on camera back

3D Color Matrix II Meter

The Nikon D300(S) contains a 3D Color Matrix II metering system that's one of the most powerful and accurate automatic exposure meters in any camera today.

You set your camera to Matrix metering by selecting the center position on the Metering selector dial (see Figure 9-2).

Figure 9-2. Metering selector dial set to Matrix

There are characteristics for many thousands of images stored in the camera. These characteristics are used (along with proprietary Nikon software and complex evaluative computations) to analyze the image that appears in your Viewfinder. The meter is then set to provide very accurate exposures for the majority of your images.

A simple example of this might be a picture where the horizon runs through the middle of the image. The sky above is bright, and the earth below is much dimmer. By evaluating this image and comparing it to hundreds of similar images in the camera's database, the camera can automatically input a meter setting for you.

The meter examines four critical areas of each picture. It compares the levels of brightness in various parts of the scene to determine the total range of EV values. It then notices the color of the subject and its surroundings. If you are using a G or D CPU lens, it also determines how far away your lens is focused so that it can figure the distance to your subject. Finally, it looks at the compositional elements of the subject.

Once it has all that information, it compares your image to tens of thousands of image characteristics in its image database, makes complex evaluations, and comes up with a meter value that is usually right on the money, even in complex lighting situations. However, I'd like to qualify that with the following considerations.

Fine-Tuning Matrix Metering

Like all digital cameras, the Nikon D300(S) tends to be a bit conservative when light values get too bright. If the camera encounters a situation where the light values exceed the range of the sensor, it tends to expose for the highlights and let the darker areas of the image lose detail. We'll talk more about this in the Histogram section of this chapter. In all cases, it tries to keep the bright values from blowing out by preventing the meter from fully approaching pure white with no detail. In my experience, the D300(S) tries to keep the exposure 1/3 to 1/2 stop below the maximum white value.

Fortunately, Nikon has given us a way to fine-tune the Matrix meter to closely match our type of shooting. As a stock shooter for Photoshelter.com, I'm always concerned about shooting images as noise-free as possible. Because of that fact I generally try to expose as close to the maximum brightness as I can without completely blowing out the highlights. Underexposure means noise, so I tend toward the highlight or bright edge of normal exposure to keep noise under control. I've found that running my D300(S) about 1/2 stop over what the Matrix meter suggests gives me images that have no serious blowout and very little noise. From time to time I have a little problem with white subjects, but generally I do well 1/2 stop over.

If you want to experiment with fine-tuning your Matrix meter to see what you can get away with, please refer to the chapter titled **Chapter 4**, and see the section titled **Fine Tune Optimal Exposure – Custom setting b6 (D300S and D300)**. This setting allows you to fine-tune each of the exposure meters individually in 1/6 stops. I leave my D300(S) set to 3/6 stops overexposure, which equals 1/2 stop. Don't be afraid to experiment with your D300(S), since you can always change your fine-tuning back to zero.

You might find that ½ stop is too much for you, or that you don't need any compensation at all. The point is that you are not limited with this camera. You can use the Matrix meter with factory settings or fine-tune endlessly.

Using Flash with Matrix Metering

When you are using flash with Matrix metering, you might find that the D300(S) is especially conservative. I have used the built-in pop-up Speedlight, an SB-600, and an SB-800 with my camera, and it consistently underexposes by about 1/3 stop in Matrix metering.

To overcome this perceived tendency in my D300(S), I have reprogrammed the camera's Fn (FUNC.) button to activate the Spot meter while I hold the button down (see the section titled **Assign Fn (FUNC.) Button – Custom Setting f5 (D300S) and f4 (D300)** in the chapter titled **Chapter 4**). With this adjustment, I find that a good spot-reading directly off my subject gives me nearly perfect exposures using flash.

Center-Weighted Meter

If you were raised on a classic center-weighted meter and still prefer that type, the D300(S)'s exposure meter can be transformed into a flexible center-weighted meter with a variable-sized weighting that you can control.

The Center-weighted meter in the D300(S) meters the entire frame but concentrates most of the metering in an 8mm circle in the middle of the frame. If you'd like, you can make the circle as small as 6mm or as large as 13mm. Let's examine the Center-weighted meter more closely.

Figure 9-3. Metering selector dial set to Center-weighted

Using Custom setting b5, you can change the size of the circle where the D300(S) concentrates the meter reading (see the chapter titled **Chapter 4**). If you'd like, you can even completely eliminate the circle and use the entire Viewfinder frame as a basic averaging meter.

As mentioned previously, the circle in your Viewfinder is normally 8mm. However, by using Custom setting b5 you can

adjust this size to one of the five size settings shown on the next page.

The Center-weighted meter is a pretty simple concept. The part of your subject that's in the center of your camera's Viewfinder influences the meter more than the parts that appear close to the edges of the frame.

Where's the Circle?

You can't see any indication of a circle in the Viewfinder, so you'll have to imagine one.

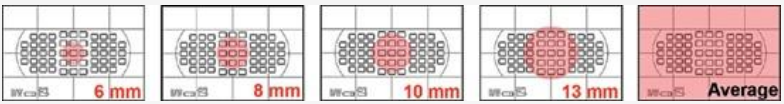


Figure 9-4. Series of imaginary red circles in the Viewfinder and averaging full frame (see list below)

- 6mm (.24 inch)
- 8mm (.32 inch)
- 10mm (.39 inch)
- 13mm (.51 inch)
- Avg – Entire Frame

Here's how (see Figure 9-4 and the list of sizes below it): Locate your current AF point in the middle of your Viewfinder. The length of the little rectangle you see is about 2.5 mm (.10 inch) in size. If you imagine about three of these little rectangles side by side, that's about the same size as the default 8mm circle, which at .32 inches is about 1/3 of an

inch. The 13mm maximum size circle, at .51 inches, is about 1/2 inch wide.

Primarily, just remember that the center area of the Viewfinder provides the most important metering area and you'll do fine. For information on fine-tuning Center-weighted metering, refer to the section called **Fine Tune Optimal Exposure** in the chapter titled **Chapter 4**.

What about the Averaging Meter?

If you set your meter to Avg in Custom setting b5 (full averaging), the light values of the entire Viewfinder are averaged to arrive at an exposure value. No particular area of the frame is assigned any greater importance (see Figure 9-4, image 5).

This is a little bit like Matrix metering, but without the extra smarts. In fact, on several test subjects, I got remarkably similar meter readings from Avg and Matrix. Matrix should do better in difficult lighting situations since it has a database of image characteristics to compare with your current image and it looks at color, distance, and where your subject is located in the frame.

Figure 9-5. Metering selector dial set to Spot

Spot Meter

Figure 9-5 shows the camera's Metering selector dial set to Spot metering. Sometimes no other meter but a spot meter will do. In situations where you must get an accurate exposure for a very small section of the frame or must get several meter readings from different small areas, the D300(S) can, once again, be adjusted to fit your needs.

The D300(S)'s Spot meter consists of a 3mm circle surrounding the currently active AF point (see Figure 9-6). That's evaluating only 2% of the frame, so it is indeed a "spot" meter. Since the spot surrounds the currently active AF point, you can move the Spot meter around the Viewfinder within the 51 AF points.

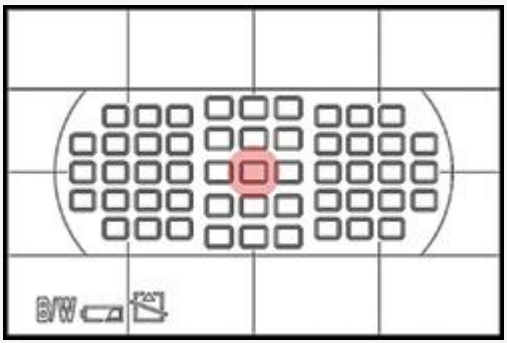


Figure 9-6. Approx. Viewfinder view of the 3mm spot

How big is the 3mm spot? Well, the Spot meter barely surrounds the little AF point rectangle in your Viewfinder. It is rather small at .11 inches. When your D300(S) is in Spot meter mode and you move the AF point to some small section of your subject, you can rest assured that you're getting a true spot reading.

In fact, you can use your Spot meter to determine an approximate EV range of light values in the entire image. You can do this by metering the lightest spot in the frame and the darkest spot. If this value exceeds 4 or 5 stops difference, you've got to decide which part of your subject is most important to you and meter only for that part. Something is going to blow out.

On an overcast day, you can usually get by with no compensation since the range of light values is often within the recording capability of the sensor. On a bright sunny day, the range of light exceeds what your sensor can record by as much as two times. This range can often be as large as 12 stops total, while your sensor can only record a maximum of 6 or 7 stops!

Don't let the numbers make you nervous. Just remember that spot metering is often a trade-off. You trade the ability of the camera's multiple "averaging" skills to generally get the correct exposure throughout the frame for the highly specific ability to ensure that a certain portion of an image is "spot-on". The choice is yours, depending on the shooting situation.

If you spot-meter the face of a person standing in the sun, the shadows around that person may contain little or no data. The shadows will often come out as solid black in the final image.

If you spot-meter for the shadows instead, the person's face is likely to blow out to solid white. We'll discuss this in more detail in a later section of this chapter when we explore the histogram.

Use your Spot meter to get specific meter readings of small areas on and around your subject, make some exposure decisions yourself, and your subject should be well exposed. Just remember that the Spot meter evaluates only for the small area that it sees, so it cannot adjust the camera for anything except that one tiny area. Spot metering requires some practice to learn how to use it well, but it is a very powerful tool to balance exposure values in your images.

For information on fine-tuning Spot metering, see the section called **Fine Tune Optimal Exposure** in the chapter titled **Chapter 4**.

Exposure Modes

(User's Manual – D300S page 104; D300 page 104)

I mentioned my old Nikon FM in the beginning of this chapter. I remember that camera with fondness, since that was when I got really serious about photography. It's hard for me to imagine that it has already been 30 years since I last used my FM! Things were simpler back then. Now that I think about it, I remember my grandma saying something similar about her Brownie Hawkeye.

When I say simple, I mean that the FM had a basic center-weighted light meter, a manual exposure dial, and manual aperture settings. I had to decide how to create the image in all aspects. It was a camera with only one mode—M, or Manual.

Later on, I bought a Nikon FE and was amazed to use its A mode, or Aperture priority. I could set the aperture manually and the camera would adjust the shutter speed for me. Luxury! The FE had two modes: M-Manual and A-Aperture priority.

A few more years went by and I bought a Nikon F4. This camera was loaded with features and was much more complex. It had four different modes, including the two I was used to, M and A, and two new modes, S-Shutter priority and P-Programmed auto. I had to learn even more stuff! The F4 was my first P, S, A, M camera.

This progression leads us to the D300 and D300S. The point is that today's cameras are amazingly complex compared to

cameras from only a few years ago. In fact, the D300S is probably the most complex camera I've ever used! Let's examine how we can use that complexity and express it as flexibility for our benefit. The D300(S) is also a P, S, A, M camera, which is the abbreviated progression of modes. We'll look at those modes next.

There are two controls that you must use together to set the various modes on the camera: the MODE button and the Main command dial (see Figure 9-7).

Figure 9-7. MODE button, Control panel with P-Program mode selected, and main Command dial

Hold the MODE button down with your shutter-release finger, and use your thumb to rotate the Main command dial. You'll notice in the upper-left corner of the Control panel that the mode (P, S, A, or M) scrolls as you turn the Main command dial. Now, let's discuss each exposure mode in detail.

P – Programmed Auto Mode

Programmed auto mode (P) is designed for those times when you just want to shoot pictures and not think much about

camera settings. The camera takes care of the shutter speed and aperture for you and uses your selected exposure meter type to create the best pictures it can without human intervention. Figure 9-8 shows the P for Programmed auto mode, followed by the shutter speed and aperture to the right of the P.

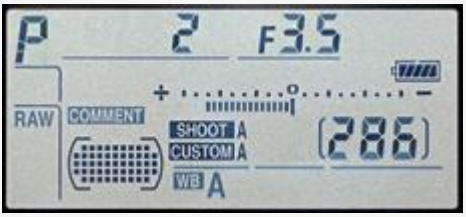


Figure 9-8. Control panel with P-Programmed auto mode

This mode is called Programmed auto because it uses an internal software program built into the D300(S). It tries its best to create optimal images in most situations.

However, even Nikon's User's Manual calls this a "snapshot" mode. P mode can handle a wide variety of situations well, but I personally wouldn't depend on it for my important shooting. When I'm at a party and I just want to enjoy myself, get some nice snapshots, and not think about the camera, then P mode means "P" for party to me.

P mode actually comes in two parts: Programmed auto and Flexible program. Flexible program works similarly to A – Aperture priority auto mode. Why do I say that? Let me explain.

Get Down Grandpa!

You're shooting at a family party and suddenly you see a perfect shot of Grandpa dancing on the dinner table and Grandma standing on the floor behind him with her hand over her mouth. Being a well-trained photographer, you glance down at your camera and realize that the f/4 aperture showing on the Control panel won't give you enough depth of field to focus on Grandpa and still have a sharp image of Grandma, who by this time is tugging at Grandpa's pant leg.

With only seconds to spare, you turn your Main command dial to the left. The D300(S) realizes that it is being called upon to leave snapshot mode and give you some control. It throws an asterisk up next to the P on the Control panel (P*) to let you know it realizes that you are taking over. And since you are turning the dial to the left, it obligingly starts cranking down the aperture. Six clicks to the left and your aperture is now at f/8. As soon as the camera detected that you were turning the Main command dial, it started adjusting the shutter speed to match the new aperture.

With only milliseconds before Grandma starts dragging Grandpa off the dinner table, you get the camera to your eye, compose the image and press the Shutter-release button, and the D300(S) starts grabbing frames. You get several frames off in the few seconds it takes Grandma to get Grandpa down from the table.

Does that make sense? What you did in my imaginary scenario was invoke Flexible program mode in your D300(S). How? As soon as you turned the Main command dial, the camera left normal P mode and switched to P* mode, otherwise known as Flexible program.

Before you turned the Main command dial, the camera was happily controlling both shutter speed and aperture for you. When you turned the dial, the camera immediately switched to Flexible program mode, put an asterisk after the P on the Control panel, and let you have control of the aperture while it controlled only the shutter speed. In effect, the D300(S) allowed you to exercise your knowledge of photography very quickly and only assisted you from that point.

When you enter P* – Flexible program mode you control only the aperture, and the D300(S) controls the shutter speed. If you turn the Main command dial to the left, the aperture gets smaller. Turn it to the right and the aperture gets larger. Nothing happens if you turn the Sub-command dial. Nikon only gave you control of the aperture in Flexible program mode. Can you see why I say that Flexible program mode acts like A – Aperture priority auto mode?

Counting Clicks in P Mode

If your D300(S) is in P mode and you turn the Main command dial to the right, the camera goes into P* mode and starts counting clicks to the right. In order to get back into normal P mode, you have to turn the Main command dial back to the left that same number of clicks (up to 15 clicks). The reason I know that the D300(S) is actually counting clicks is that I decided to count along one day. Here's what I did: I set my camera to P mode and got into a darker area where the lens was at maximum aperture. I then started cranking the Main command dial to the right, which should increase the aperture. Since I was already at maximum aperture, the camera could not increase the aperture size, so it just sat there counting clicks instead. In

order for me to get back into P mode, and remove the asterisk from the P*, I had to turn the Main command dial back to the left the exact number of clicks I turned to the right (up to 15 clicks). You can also turn the camera off or change modes to get out of Flexible program mode.

S – Shutter Priority Auto Mode

Shutter priority auto is for those who need to control their camera's shutter speed while allowing the camera to maintain the correct aperture for the available light. Figure 9-9 shows the S for Shutter priority auto mode, followed by the shutter speed and aperture to the right of the S.

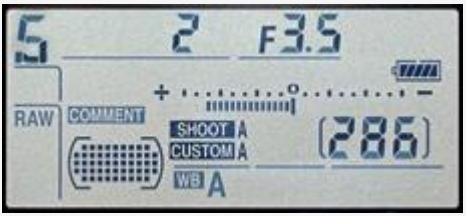


Figure 9-9. Control panel with S-Shutter priority auto mode

If you find yourself shooting action, you'll have a great concern for keeping the shutter speed high enough to capture an image without excessive blurring. Shooting sports, air shows, auto races, or anything that moves quickly requires careful
control of the shutter. Sometimes, you might want to set your shutter speed to a very slow setting for special effects or time exposures.

Figure 9-9 shows the D300 in Shutter priority auto mode (S). To use the S mode, select a shutter speed that you feel will work for your current shooting situation and set it with the Main command dial. The D300(S) will now assist you by controlling the aperture to maintain correct exposure.

If the light changes drastically and the D300(S) cannot maintain a correct exposure, it will inform you by replacing the normal aperture reading with either HI or Lo. They mean what they imply: HI means there is too much light for a good exposure, and Lo means there is not enough light for a good exposure.

While you have your camera in S mode, you can set your shutter speed anywhere between 30 seconds and 1/8000 second. You can also set it at x250, which is one click below the slowest shutter speed on the dial (30s). For more information on x250, see Custom setting e1 on page 281 of the D300(S) User's Manual or page 288 of the D300 User's Manual.

A – Aperture Priority Auto Mode

Nature and macro shooters, and anyone concerned with carefully controlling depth of field, will often leave their D300(S) set to Aperture priority auto mode (A). Figure 9-10 shows the A for Aperture priority auto mode, followed by the shutter speed and aperture to the right of the A.

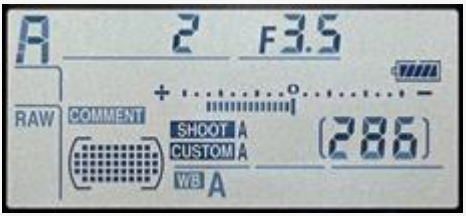


Figure 9-10. Control panel with A-Aperture priority auto mode

A – Aperture priority auto mode lets you control the aperture while the D300(S) takes care of the shutter speed for optimal exposures. With newer AF-S and G lenses, you'll use the Sub-command dial to select an aperture. You can control the aperture from maximum to minimum just by using the Sub-command dial on the D300(S).

Note on Lens Types – If you use an older AF lens with an aperture ring, set it to the smallest aperture, then use the Sub-command dial, instead of the ring on the lens, to change the aperture. If you have older non-CPU lenses, you'll have to use the aperture ring on the lens to control the aperture.

Depth of field (DOF) is an extremely important concept to understand for photographers. Simply put, it allows you to control the range of sharp focus in your images. Please check the downloadable resources at http://rockynook.com/NikonD300S for a document called **Understanding Depth of Field**. This document will give a new DSLR user a nice tutorial on controlling depth of field.

Now, let's examine Manual mode (M) and see how a dedicated photographer can take complete control of their camera.

M – Manual Mode

Manual mode takes a big step backwards to days of old. It gives you complete control of your camera's shutter and aperture so that you can make all exposure decisions, with suggestions from the exposure meter. Figure 9-11 shows the M for Manual mode, followed by the shutter speed and aperture to the right of the M.

Also in Figure 9-11, notice the electronic analog exposure display that's highlighted in red.

Figure 9-11. Control panel with M-Manual mode and exposure display highlighted in red, along with Viewfinder display

This display has a plus sign (+) on the left and a minus sign (-) on the right. Each dot on the scale represents 1/3 exposure value (EV) step and each vertical line represents 1 EV step.

You can control the sensitivity of the Command dials with Custom setting b2 – EV steps for exposure cntrl. (see Chapter 4). The factory-default setting for b2 allows the

Command dials to change aperture or shutter speed in 1/3 EV steps. If you'd like, you can set b2 to 1/2 or 1 EV step instead.

When you are metering your subject, a bar will extend from the zero in the center toward the plus side to indicate overexposure or toward the minus side to indicate underexposure (see Figure 9-12). You can gauge the amount of over- or underexposure by the number of dots and lines the bar passes as it heads toward one side or the other. The goal in Manual mode is to make the bar disappear. In Figure 9-12, the bar indicates 2⅓ EV steps (stops) overexposure.

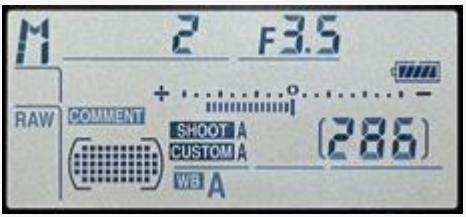


Figure 9-12. Control panel with M-Manual mode

You'll adjust the aperture with the Sub-command dial and the shutter speed with the Main command dial.

Note on Lens Types – With newer G lenses, you can control the aperture from maximum to minimum by using the Sub-command dial on the D300(S). If you use an older AF lens with an aperture ring, set it to the smallest aperture on the lens, then use the Sub-command dial, instead of the ring on the lens, to change aperture. If you have an older non-CPU lens, you'll have to use the aperture ring on the lens to control the aperture.

Histogram

Back in the "good old" film days we didn't have a histogram, so we had to depend on our experience and light meter to get a good exposure. Since we couldn't see the exposure until after we had left the scene, we measured our success by the number of correctly exposed images we were able to create. With the exposure meter/histogram combination found in the D300(S), and the ability to zoom into our images with the high-resolution Monitor on the back, the success rate we can experience is much higher than ever before.

The histogram can be as important, or even more so, than the exposure meter. The meter sets the camera up for the exposure, and the histogram visually verifies that the exposure is a good one.

If your exposure meter stopped working, you could still get perfect exposures using only the histogram. In fact, I gauge my efforts more by how the histogram looks than anything else. The exposure meter and histogram work together to make sure you get excellent results from your photographic efforts.

Figure 9-13 shows the D300S's two histogram screens. The first screen in Figure 9-13 is called the RGB histogram screen and it shows a series of histograms. On the top is a luminance histogram, followed by the red, green, and blue channels (RGB = red, green, blue). The D300's RGB histogram screen differs slightly from the newer D300S version shown in Figure 9-13, image 1. On the D300's screen, the luminance

(white) histogram appears underneath the small picture. It works the same; it just looks a little different.

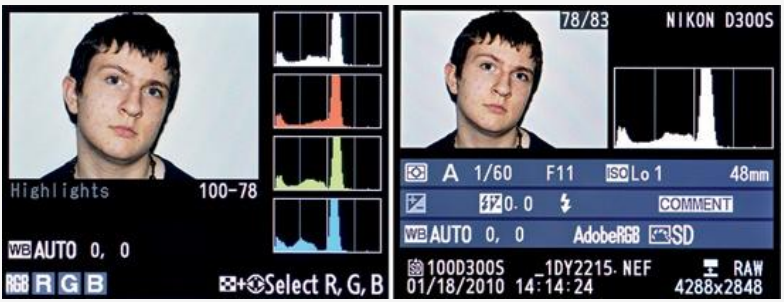


Figure 9-13. Two D300S histogram screens

If your camera does not display the RGB histogram screen shown in Figure 9-13, image 1, you'll need to select the check box found at Playback Menu > Display mode > RGB histogram. This setting enables or disables the RGB histogram screen.

The camera also has a basic luminance histogram on the screen shown in Figure 9-13, image 2. This is one of the camera's main screens and can always be called into use. Both of these screens are available by scrolling up or down with the Multi Selector when you have a picture showing on the camera's Monitor.

Now, let's discuss the use of a histogram in detail.

Understanding the Histogram

Using your D300(S)'s histogram screens will guarantee you a much higher percentage of well-exposed images. It is well

worth spending time to understand the histogram. It's not as complicated as it looks.

I'll try to cover this feature with enough detail to give you a working knowledge of how to use the histogram to make better pictures. If you are deeply interested in the histogram, there is a lot of research material available on the Internet. Although this overview is brief, it will present enough knowledge to improve your technique immediately.

Light Range

The D300(S)'s sensor can only record a certain range of light values—about 5 to 7 usable EV steps. Unfortunately, many of the higher-contrast subjects we shoot can contain over 12 stops of light values. This is quite a bit more than it is possible to capture in a single exposure. It's important to understand how your camera records light so that you can better control how the image is captured.

Look at Figure 9-14 closely. The gray rectangular area represents an in-camera histogram. Examine it carefully! Think about it for a minute before reading on.

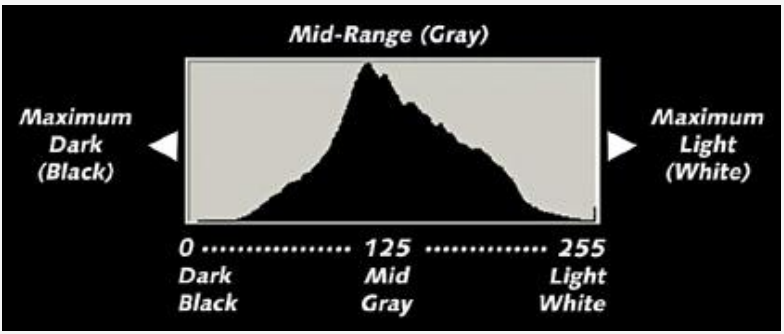


Figure 9-14. A basic histogram

The histogram is basically a graph that represents the maximum range of light values your camera can capture, in 256 steps (o = pure black, and 255 = pure white). In the middle of the histogram are the mid-range values that represent middle colors like grays, light browns, and greens. The values from just above zero and just below 255 contain detail.

The actual histogram graph looks like a mountain peak, or a series of peaks, and the more there is of a particular color, the taller the peak. In some cases the graph will be rounder on top, and in other cases it will be flattened.

The left side of the histogram represents the maximum dark values that your camera can record. The right side represents the maximum brightness values your camera can capture. On either end of the histogram the light values contain no detail. They are either completely black or completely white.

The height of the histogram (top of mountain peaks) represents the amount of individual colors. You cannot easily control this value in-camera, other than changing to a Picture Control with more or less saturated color, so it is for your information only.

We are mostly concerned with the left- and right-side values of the histogram, since we do have much greater control over those (dark vs. light).

Simply put, the histogram's left and right directions are related to the darkness and lightness of the image, while the up and down directions of the histogram (valleys and peaks)

have to do with the amount of color information. I repeated this for emphasis!

The left (dark) and right (light) directions are very important for your picture taking. If the image is too dark, the histogram will show that by clipping off the light values on the left; or if it's too light, by clipping on the right. This will become easier to understand as we look at well-exposed and poorly exposed images. Check out the Histogram Basic Tutorial in Figure 9-15, and then we'll look at things in more detail.

When you see the three histograms next to each other, does it make more sense? See how the underexposed histogram is all the way to the left of the histogram window and is clipped mid-peak? Then note how both edges of the well-exposed histogram just touch the edges of the histogram window. Finally, notice how the overexposed image's histogram is crammed and clipped on the right. I hope this helps somewhat! Now let's look at some histogram detail.

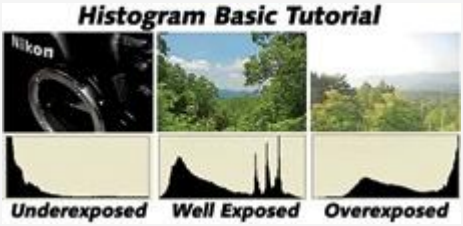


Figure 9-15. Three histograms – one underexposed, one correctly exposed, and one overexposed

Histogram Shape

Look at the image in Figure 9-16. It is well exposed with no serious problems.

The entire light range of this particular image fits within the histogram window, which means that it's not too light or too dark and will take very little or no adjustment to view or print.

Figure 9-16. Good image with normal histogram shape, no clipping

It contains no more than 4 or 5 stops (EV steps) of light range. To finalize the image, I might increase the brightness in the trees a little, but otherwise it's a sound image with potential for immediate usage.

Compare Figure 9-16's histogram to the histogram graph on the left in Figure 9-15. See how the Figure 9-16 histogram does not cram itself against the dark value side? In other words, the dark values are not clipped off on the left. This means that the camera recorded all the dark values in this image, with no loss of shadow detail.

Then look at the right side of the histogram graph and note that it is not completely against the right side, although quite close. The image contains all the light values available. Everything in between is exposed quite well, with full detail. A histogram does not have to cover the entire window for the exposure to be fine. When there is a very limited range of light, the histogram may be rather narrow.

The image in Figure 9-16 is a relatively bland image with smooth graduations of tone, so it makes a nice smooth mountain-peak histogram graph. This will not occur every time, since most images contain quite a bit more color information. Each prominent color will be represented with its own peak on the histogram graph. The most prominent colors will have higher peaks, while the less prominent will have lower or no peaks.

As we progress into images with more color or light information, we'll see that the histogram looks quite different.

Look at the image in Figure 9-17. This is from an image that exceeds the range of the D300(S)'s digital sensor.

Notice that, overall, this image is dark and looks underexposed. The histogram in Figure 9-17 is crammed to the left, effectively being clipped off. There are no gradual climbs like on a mountain range, from valley to peak and back to valley. Instead, the image shows up on the left side in mid-peak. It is clipped. This is an underexposed image and the histogram reflects that well.

Figure 9-17. Histogram showing underexposure (dark side)

The most important thing to understand when you see a histogram like the one in Figure 9-17, with part of the peak clipped off on the left, is that *some or all of the image is significantly underexposed*.

Now look at a similar image in Figure 9-18. In this image, a larger aperture was used and more light was allowed in. We can now see much more detail. However, once again, the range of light is too great for the sensor, so it is now clipped off on the highlight side (right). The dark-side value is not clipped; instead, the graph extends to the left dark-side edge but stops there.

The image in Figure 9-18 shows more detail but is not professional looking and will win no awards. The range of light is simply too great to be recorded fully. Many of the details are overly light, and that can be seen by the clipping of the histogram on the right side. The most important thing to remember here is that when you see a histogram graph that is crammed all the way to the right and clipped, *some or all of the image is significantly too light.* Overall, a great deal of the

image in Figure 9-18 is recorded as pure white and is permanently gone, or blown out.

Figure 9-18. Histogram showing overexposure (light side)

It is important that you try to center the histogram without clipping either edge. This is not always possible, as shown in Figure 9-18, because the light range is often too great and the sensor or histogram window can't contain it. If you center the histogram, your images will be better exposed. If you take a picture and the histogram graph is shifted way left or right, you can then retake the photograph, exposing in the direction of the opposite light value.

If there is too much light to allow centering the histogram, you must decide which part of the image is more important, the light or dark values, and expose for those values.

How Does the Eye React to Light Values?

The D300(S) camera, with its imaging sensor and glass lenses, is only a weak imitation of our marvelously designed

eye and brain combination. There are very few situations in which our eyes cannot adjust to the available light range. So, as photographers, we are always seeking ways to record even a small portion of what our eye and mind can see.

Since our eyes tend to know that shadows are black, and expect that, it is usually better to expose for the highlights. If you see dark shadows, that seems normal. We're simply not used to seeing light that's so bright that all detail is lost. An image exposed for the dark values will look very weird because most highlight detail will be burned out.

Your eyes can see a huge range of light in comparison to your digital sensor. The only time you will ever see light values that are so bright that detail is lost is when you are looking directly at an overwhelmingly bright light, like the sun. So, in a worst-case scenario, expose the image so that the right side of the histogram graph just touches the right side of the histogram window, and the image will look more normal.

Since photography's beginning, we have always fought with only being able to record a limited range of light. But, with the digital camera and its histogram, we can now see a visual representation of the light values and can immediately approve of the image, reshoot it with emphasis on lighter or darker values, or see that we must use a filter or multiple-exposure high dynamic range imaging (HDR) to capture it at all.

Computer Adjustment of Images

Looking at the image in Figure 9-19, taken in mid-day overhead sunshine, we see an example of a range of light that

is too great to be captured by a digital sensor but is exposed in such a way that we can get a usable photo later.

Notice in Figure 9-19 how the dark values are clipped off and dark detail is lost. But look to the right side of the histogram and notice how the light values are not clipped off. The camera recorded all the light values but lost some dark values.

Since our eye sees this as normal, this image looks okay.

Figure 9-19. Cabin picture with correct exposure but dark shadows, and its histogram

If we were standing there looking at the cabin ourselves, our eye would be able to see much more detail in the front porch area. But the camera just can't record that much light range. If we want to get a bit more detail in the shadows than this image seems to contain, we can do it. Normally, a camera does not give us enough control to add light values on the fly, so we use the histogram to get the best possible exposure and then adjust the image later in the computer. Some cameras can be profiled to capture light ranges more effectively in one direction or the other, but when you push one area, the opposite area must give. So, we need a way to take all this light and compress it into a more usable range.

We are now entering the realm of post-processing, or in-computer image manipulation. Look at the image in Figure 9-20. This is the exact same image as Figure 9-19, but it has been adjusted in Photoshop to cram more image detail into the histogram by compressing the mid-range values. Notice that the entire histogram seems to be farther right, toward the light side. Also notice that the mid-range peaks are basically gone. We removed a good bit of the mid-range, but since there was already a lot of mid-range there, our image did not suffer greatly.

How this computer post-processing was done is outside the scope of this book, but it is not very hard. Buy a program like Nikon Capture NX, Photoshop, Photoshop Elements, Lightroom, or another fine graphics program designed for photographers. Your digital camera and your computer are a powerful imaging combination—a digital darkroom, where you are in control from start to finish, from clicking the shutter to printing the image. But, retreating from philosophy, let's continue with our histogram exploration.

Notice in Figure 9-20 how the histogram edge is just touching the highlight side of the histogram window?

A small amount of clipping is taking place, and you can see the slightly blown out area on the peak of the cabin's roof. Sometimes a very small amount of clipping does not seriously harm the image.

Figure 9-20. Post-processed cabin picture and its histogram (in-computer manipulation)

The photographer must be the judge. The greater apparent detail in this image is the result of compressing the mid-range of the light values a bit in the computer. If you compress or make the mid-range light values smaller, that will tend to pull the dark values toward the light side and the light values toward the dark side. So, you will have more apparent detail in your image. It's like cutting a section out of the middle of a garden hose. If you pull both of the cut ends together, the other two ends of the hose will move toward the middle, and the hose will be shorter overall. If you compress or remove the mid-range of the histogram, both ends of the graph will move toward the middle. If one end of the graph is beyond the edge of the histogram window (clipped off), it will be less so when the mid-range is compressed.

We are simply trying to make the histogram fit into the frame of its window. If we have to cut out some of the middle to bring both ends into the window, well, there is usually plenty in the middle to cut out, so the image rarely suffers. Remember, this is done outside of the camera in a computer. You can't really control the in-camera histogram to compress

values, but you need to be aware that it can be done in the computer so that you can expose accordingly with your camera's histogram. Then you will be prepared for later post-processing of the image.

In fact, now that we have compressed the mid-range values, Figure 9-20 more closely resembles what our eye normally sees, so it looks more normal to us.

In many cases, your progression from the shooting site to your digital darkroom can benefit if you shoot NEF (RAW) images.

A RAW digital image contains an adjustable range of light. With a RAW image you can use controls in Capture NX, Photoshop, or even the basic Nikon Picture Project software included with the D300(S) to select from the range of light within the big RAW image file. It's like moving the histogram window to the left or right over all that wide range of RAW image data. You select a final resting place for the histogram window, capture the underlying RAW data, and your image is ready for use.

This is a serious oversimplification of the process, but I hope it is more understandable. In reality, the digital sensor records a wider range of light than you can use in one image. While you might be able to use about 5 stops of light range in a normal image, the digital sensor probably records about 7 stops of light range. Although you can't get all of that range into the final image, it is there in the RAW file as a selectable range. I prefer to think of it as a built-in bracket, since it works the same way.

This bracketed light range within the image is present to a very limited degree in JPEG, and a bit more so in TIFF

images, but is the most pronounced in pure RAW images. That is why many choose to shoot in RAW mode instead of JPEG or TIFF.

My Conclusions

The Nikon D300(S) has a Multi Selector that can be pressed right or left to scroll through the images you have already taken. You can also press the Multi Selector up or down to scroll through the various informational modes, such as the histogram screen. When you take a picture of an important subject, find the histogram view of your image. If you can't find the screen with multiple histograms, as shown in Figure 9-13, see the Playback Menu > Display mode and select RGB histogram.

Your camera meter should be used to get the initial exposure only. Then you can look at the histogram to see if the image's light range is contained within the limited range of the sensor. If it is clipped off to the right or the left, you may want to add or subtract light with your Exposure compensation button, or use your Manual mode. Expose for the light range with your histogram. Let your light meter get you close, then fine-tune with the histogram.

There are also other Monitor viewing modes that you can use along with the histogram graph, such as the Highlights (blinky blinky) mode for blown-out highlights (see the Playback Menu > Display mode and select Highlights). This mode will cause your image to blink from light to dark in the blown-out highlight areas. This is a rough representation of a highlight-value clipped histogram, and it is quite useful for quick shooting. Using your camera's light meter, histogram, and the highlight burnout blinky mode together is a very powerful method to control your exposures.

If you master this method, you will have a very fine degree of control over where you place your image's light ranges. This is sort of like using the famous Ansel Adams's black and white Zone System, but it is represented visually on the Monitor of your D300(S).

The manipulation of the histogram levels in-computer is a detailed study in itself. It's part of having a digital darkroom. Learn to use your computer to tweak your images, and you'll be able to produce superior results most of the time. Even more importantly, learn to use your histogram to capture a nice image in the first place!

Your histogram is simply a graph that lets you see at a glance how well your image is contained by your camera. Too far left and the image is too dark; too far right and the image is too light. Learn to use the histogram well and your images are bound to improve!

Chapter 10. White Balance

Hello Cutie – Courtesy of Stephen J. Weston (*stevezz1*)

Back in the "good old days" we'd buy special rolls of film or filters to meet the challenges of color casts that come from indoor lighting, overcast days, or special situations.

The D300(S)'s method for balancing the camera to the available light comes with the White balance (WB) controls.

How Does White Balance (WB) Work?

Normally White balance is used to adjust the camera so that whites are truly white and other colors are accurate under whatever light source you are shooting. You can also use the White balance controls to deliberately introduce color casts into your image for interesting special effects.

Camera WB color temperatures are exactly backwards from the Kelvin scale we learned in school for star temperatures. Remember that a red giant star is cool, while a blue/white star is hot. The WB color temperatures are backwards because the WB system adds color to make up for a deficit of color in the original light of the subject.

For instance, under a fluorescent light, there is a deficit of blue, which makes the image appear greenish yellow. When blue is added, the image is balanced to a more normal appearance.

Another example might be shooting on a cloudy, overcast day. The ambient light could cause the image to look bluish if left unadjusted. The White balance control in your camera sees the cool color temperature and adds some red to warm

the colors a bit. Normal camera WB on a cloudy, overcast day might be about 6000K.

Just remember that we use the real Kelvin temperature range in reverse and that red colors are considered warm while blue colors are cool. Even though this is backwards from what we were taught in school, it fits our situation better. To photographers, blue seems cool while red seems warm! Just don't let your astronomer friends convince you otherwise.

White Balance Fundamentals

Understanding WB in a fundamental way is simply realizing that light has a range of colors that go from cool to warm. We can adjust our cameras to use the available light in an accurate and neutral, "balanced" way that compensates for the actual light source. Or, we can allow a color cast to enter the image by unbalancing the settings. In this chapter, we will discuss this from the standpoint of the D300(S)'s camera controls and how they deal with WB.

Color Temperature

(User's Manual – D300S page 133; D300 page 127)

The D300(S) WB range can vary from a very cool 2500K to a very warm 10,000K. Figure 10-1 shows the same picture adjusted in Photoshop, with the use of Photo Filters, to three WB settings. Notice how the image in the center is about right, while the images to the left and right are cooler (blue cast) or warmer (orange cast).

The same adjustments we made with film and filters can now be achieved with the White balance settings built into the D300(S).

Figure 10-1. Same image with different WB settings

To achieve the same effect as daylight film and a warming filter, simply select the Cloudy White balance setting while shooting in normal daylight. This sets the D300(S) to balance at about 6000K, which makes nice warm-looking images. If you want to really warm the image up, set the controls to Shade, which sets the camera to 8000K.

On the other hand, if you want to make the image appear cool or bluish, try using the Fluorescent (4200K) or Incandescent (3000K) settings in normal daylight.

Remember, the color temperature shifts from cool values to warm values. The D300(S) can record your images with any color temperature from 2500K (very cool or bluish) to 10,000K (very warm or reddish) and any major value in between. There's no need to carry different film emulsions or filters to deal with light color range. The D300(S) has very easy-to-use color temperature controls and a full range of color temperatures available.

There are two separate methods for setting the white balance on the D300(S):

- ***Method 1*** **–** Manual WB using the WB button and selecting options
- ***Method 2*** **–** Manual WB using the Shooting Menu and selecting options

We'll consider each of these methods since you may prefer to use different methods according to the amount of time you have to shoot and the color accuracy you want. Most critical photographers will use method number two, the PRE (PrE) measurement method.

Method 1 – Manual White Balance Using the WB Button

(User's Manual – D300S page 134; D300 page 128)

Sometimes we might simply want to control the WB in a totally manual way. This method and the next are basically the same thing, except one sets the WB using a button and dial and the other uses the camera's menu system.

Each of these methods will allow you to set a particular WB temperature. If you want your image to appear cool, medium, or warm, you can set the appropriate color temperature, take the picture, and then look at the image on the Monitor. Figure 10-2 shows the external camera controls used to adjust WB.

Here is how to manually choose a WB color temperature value using the WB button, the Main command dial, and the Control panel:

Figure 10-2. White balance external controls – White Balance button (top); Main command dial (rear); Sub-command dial (front)

1. Press and hold the WB button on the top left of your D300(S) (see Figure 10-2).
2. Rotate the Main command dial. The symbols shown below will appear one at a time on the Control panel. Each click of the dial will change the display to the next WB setting. These symbols, options, and their Kelvin values are as follows:

- AUTO AUTO Auto White Balance – 3500 – 8000K (A on Control panel)
- Incandescent – 3000K
- Fluorescent – 4200K
- Direct Sunlight – 5200K
- Flash – 5400K
- Cloudy – 6000K
- Shade – 8000K
- K – Choose your own color temperature from 2500 to 10,000K
- PRE PRE (Preset manual) – Use to measure WB for the actual ambient light. If no measurement is taken, the value used is whatever was last stored in camera memory location d-0.

Manually Selecting a Color Temperature between 2,500 and 10,000 K

(User's Manual – D300S page 142; D300 page 136)

The K, or Choose color temp. selection is a flexible one that allows you to manually select a WB value between 2,500 and 10,000 K. Once you have selected the K symbol by holding down the WB button and rotating the Main command dial, rotate the Sub-command dial to select the actual WB temperature you desire.

Measuring Actual Ambient Light and Using PRE

This method allows you to measure ambient light values and set the camera's WB. It's not hard to learn and is very accurate since it's an actual through-the-lens measurement of the source light's Kelvin temperature. You'll need a white or gray card to accomplish this measurement. Figure 10-3 shows the popular WhiBal pocket card, which is a product of PictureFlow LLC and is available exclusively from **RawWorkflow.com**.

Figure 10-3. The WhiBal pocket card in its case

How to select the PRE White balance measurement method:

1. Press and hold the WB button.
2. Rotate the Main command dial until PRE shows in the lower-right of the Control panel. You'll also see d-0 in the top-left corner of the Control panel (Figure 10-4).
3. Release the WB button.

4. Press and hold the WB button again until PRE starts flashing.
5. Point the camera at a white or neutral gray card in the light source under which you will be taking pictures. It does not have to focus on the card; it can just be pointed at the card so that it fills the frame.
6. Press the Shutter-release button fully, as if you were photographing the white card. The shutter will fire, but nothing will appear on the Monitor.
7. Check the Control panel to see if *GOOD* is flashing. If you *see No Gd* flashing (instead of *GOOD),* the operation was *not* successful. Your available light may not be bright enough to take an accurate reading.

The PRE measurement is very sensitive since it uses the light coming through the lens to set the WB. Unless you are measuring in an extremely low-light level, it will virtually always be successful.

In step 2, I mention that d-0 appears in the top-left corner of the Control panel during a WB measurement (see Figure 10-4). This d-0 is where the current WB value is stored. There are four other memory locations, d-1 to d-4, which you can use to store WB values you regularly use. Later, you can copy a value stored in d-1 to d-4 back into d-0.

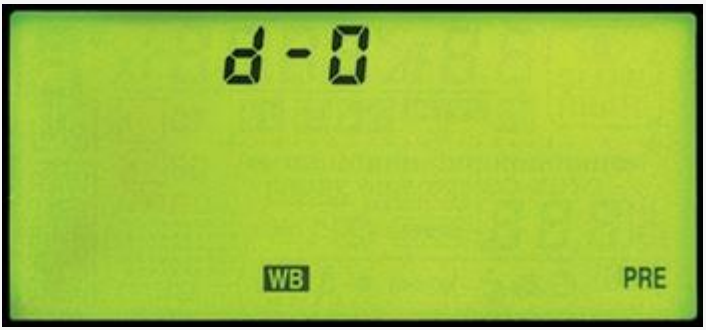


Figure 10-4. PRE measurement

Storing White Balance Values for Future Use

If you have previously used the manual "measured" PRE method to set the WB, you will already have a value in WB memory location d-0. You can keep up to five WB values stored in your D300(S). In location d-0 you'll find the current PRE WB, and in d-1 through d-4 you'll find any stored WB values. They appear as tiny images, as shown in Figure 10-5.

If you shoot under a certain light source on a frequent basis, such as in a studio, you may want to store one or more of your PRE White balance values in one of the four permanent storage areas in your camera (d-1 to d-4).

I tried to enter a White balance measurement directly into one of the d-1–d-4 memory locations by selecting the location before doing the light measurement. However, my values did not show up in d-1–d-4 but instead overwrote the value in d-0 each time. It is only possible to *copy* a value from d-0 into one of the four storage locations. I suppose Nikon was concerned that one might accidentally overwrite a carefully prepared White balance setting, so it added a copy step between the measurement and long-term storage.

Figure 10-5. Stored WB values

In effect, you may have up to five White balance values stored in your camera. One is the current temporary setting, and the other four are in memory for long-term reuse. Figure 10-6 shows the steps and menus used to copy the current White balance value from memory location d-0 to one of the four storage locations. You'll see a visual representation of the stored WB values. If there is nothing stored in d-1–d-4, there will be a blank spot above the number.

Here's how to save a current WB reading (d-0) to one of memory locations d-1 to d-4:

1. Use ***Method 1*** to obtain a PRE White balance reading. It will automatically be placed in memory location d-0.

Figure 10-6. Starting White balance PRE maintenance

2. Use the screens shown in Figure 10-6 to start the WB maintenance process. Select White balance from the Shooting Menu screen and scroll to the right (see Figure 10-6, image 1).

3. Select Preset manual and scroll to the right (see Figure 10-7, image 1).

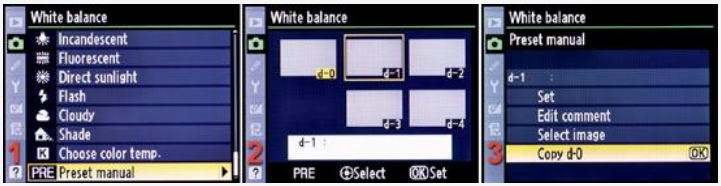


Figure 10-7. Select a memory location d-1 to d-4 and then copy d-0 to it.

4. As shown in the second screen of Figure 10-7, select a blank memory location (d-1 to d-4) or one that you want to overwrite. My camera already has a WB stored in all memory locations, as shown in Figure 10-7, image 2, so I'll be overwriting d-1. Press the Multi selector center button.

5. Scroll down to Copy d-0 and press the OK button. The camera will then write a copy of d-0 into the memory location you selected (see Figure 10-7, image 3).

Once you've written a WB value to one of the memory locations d-1-d-4, it will remain there for future use as needed. You can access any of the saved WB values by selecting PRE with the WB button and then rotating the Sub-command dial until you find the one you want (d-0-d-4). Or you can use the menus to directly select the named memory location.

Editing the Comment Field

As shown in Figure 10-8, you can rename the memory location in which you just stored a White balance setting by selecting it with the Multi selector center button and then selecting Edit comment from the menu (see Figure 10-8, image 2). Change the name of the memory location to something that will remind you of its use, if you'd like.

Figure 10-8. Editing the comment field

When you have the character-selection panel open (see Figure 10-8, image 3), use the Multi Selector to navigate between letters and numbers. Press the Multi selector center button to add a character to the name. To scroll through characters already in the new name, hold down the Thumbnail/playback zoom out button while navigating to the left or right with the Multi Selector. Press the Delete button (garbage can) to delete the current character. Press the OK button to save the memory location name.

Using the White Balance from a Previously Captured Image

It is also quite possible to select a White balance setting from an image you have already successfully taken. This image's value can be applied to the picture you are about to take or can be copied to memory locations d-1 to d-4 (using the method described previously) for later use.

Here are the steps and screens to recover the White balance setting from an image stored on your memory card (see Figure 10-9):

1. Use the Shooting Menu screens shown in Figure 10-6 to get to the d-0-d-4 memory location screen.

Figure 10-9. Screens to recover a White balance setting from an image

2. Use the Multi Selector to scroll to the memory location you want to set with the value from an image (see Figure 10-9, image 1). You must select d-1–d-4 only. You cannot use d-0 for this operation. Press the Multi selector center button to select the memory location you want to replace.

3. Scroll down to Select image and scroll to the right (see Figure 10-9, image 2). It will be grayed out if there are no images on your current memory card.

4. You will now see the Select image screen (see Figure 10-9, image 3). Navigate through the available images until you find the one you want to use for white balance information.

5. Press the Multi selector center button and a small picture of the image will appear in your selected White balance memory location (see Figure 10-9, image 4).

Adjusting a Saved White Balance's Color Values

If you want to fine-tune a previously saved White balance value, you can do it with the Set function. The value in any of the d-0 to d-4 memory locations can be manually changed. The color balance can be moved toward G-Green, A-Amber, M-Magenta, or B-Blue, or toward intermediate combinations of those colors. Here are the screens and steps to Set a new color balance (see Figure 10-10).

Figure 10-10. Set or adjust an existing White balance value

1. Use the Shooting Menu screens shown in Figure 10-6 to get to the d-0-d-4 memory location screen.
2. Use the Multi Selector to scroll to the memory location you want to adjust (see Figure 10-10, image 1). Press the Multi selector center button to select it.
3. Choose Set from the menu and scroll to the right (see Figure 10-10, image 2).
4. Use the Multi Selector to Adjust the color balance (see Figure 10-10, image 3). You'll scroll around in the color box toward whatever color combination you want to add

to the currently stored White balance. If you change your mind, return the little black square to the center of the color box. You'll see the color mired values changing on the right side of the screen in the fields next to A-B and G-M. Each increment (click) of the Mutli Selector is equal to about 5 mired.

5. Press the OK button to save your adjustments to the stored White balance.

Method 2 – Manual White Balance Using the Shooting Menu

This method is similar to ***Method 1***, but it uses the Shooting Menu screens to select the Kelvin range. Instead of using the WB button and Sub-command dial, you'll open up your menus and set the color temperature by selecting from them.

Here are the screens and steps used to select a White balance setting (see Figure 10-11):

Figure 10-11. Shooting Menu White balance screens

1. Select White balance from the Shooting Menu and scroll to the right.
2. Select one of the preset values, such as Flash or Cloudy, and scroll to the right.
3. Press the OK button immediately, without moving the little square from its center position.

Normally you'll use only the first two screens (in Figure 10-11) to select one of the preset WB values, such as Cloudy, Shade, or Direct sunlight. Then you'll just press the

OK button on the final screen, without changing anything. Figure 10-11 shows Direct sunlight as an example.

Note that the Fluorescent selection allows you to choose one of seven different light sources, covering a wide spectrum.

If you choose to fine-tune any of the color temperature settings after you have selected one of the preset WB values, the color box in the last screen of Figure 10-11 allows you to do so by mired clicks. Each press of the Multi Selector in a given direction is equal to 5 mired in that direction—up is green (G), down is magenta (M), left is blue (B), right is amber (A).

If you aren't familiar with adjusting the preset's default color temperature, or don't want to change it (most won't), then simply press the OK button without moving the little square from the center. If you've accidentally moved it, simply move it back with the Multi Selector until it's in the middle again, then press the OK button. That will select the preset WB value without modifying its default value (see ***Method 1*** for a list of the preset WB default values).

That is all there is to selecting a WB preset from within the Shooting Menu system. The only difference between this method and ***Method 1*** is that this method allows you to fine-tune the color temperature values (Figure 10-11, image 3). I normally do not use
Method 2 since ***Method 1*** allows me to select a preset WB value without accidentally modifying its default color temperature, and it doesn't require me to use the menus.

I find that ***Method 1*** is much faster since I am using external camera controls, and it takes only seconds to set the values or even do a PRE reading of ambient light.

White Balance Bracketing

(User's Manual – D300S page 125; D300 page 123)

You can also do WB bracketing similar to how you would do flash or exposure bracketing. If you want to bracket your camera's white balance, you must set Custom setting e5 to WB bracketing. Flash or exposure bracketing will not work during the time that e5 is set to WB bracketing.

Personally, I prefer to use NEF (RAW) mode when shooting and then make minor or major adjustments in the computer post-processing stage. However, you may want to use WB bracketing, so let's consider it. WB bracketing *does not work when your camera is in RAW mode.*

Figure 10-12 to Figure 10-14 show the menus and controls used to select WB bracketing.

Figure 10-12. Menu screens to select WB bracketing

Figure 10-13. Controls to use WB bracketing

Here are the steps to set up WB Bracketing:

1. Set Custom setting e5 to WB bracketing (see Figure 10-12).

2. Use the controls shown in Figure 10-13 to control the WB brackting process. Please note that you must have previously assigned the Fn (Func) button + dials to Auto bracketing (BKT) with Custom setting F5 (D300S) or Custom setting f4 (D300). If you assigned a different button to WB bracketing, use it instead.

   Choose the number of shots in the bracket (up to nine shots total) by pressing and holding the Fn (FUNC.) button while turning the Main command dial left or right (Figure 10-13, images 1 and 2). See Figure 10-14 as a reference for the values you will set with these controls. Here is a table of values that you can select in the position shown as 3F in Figure 10-14. These values are the number of shots and bracketed color shift increments. For instance, if you bracket for 7F, you'll have one normal exposure, three with increasing amounts of blue and three with increasing amounts of amber:

Figure 10-14. WB bracketing

Table of Values

oF - No bracketing selected

b3F - Three shots – normal exposure and two blue exposures

A3F - Three shots – normal exposure and two amber exposures

b2F - Two shots – normal exposure and one blue exposure

A2F - Two shots – normal exposure and one amber exposure

3F - Three shots – normal exposure, one blue and one amber exposure

5F - Five shots – normal exposure, two blue and two amber exposures

7F - Seven shots – normal exposure, three blue and three amber exposures

9F - Nine shots – normal exposure, four blue and four amber exposures

Look for the WB-BKT symbols to appear on the Control panel, along with lines below the +/- scale to show the number of shots you've selected (see Figure 10-14). The number of lines hanging below the +/- scale will reflect the number of shots from the table of values above.

3. Select the WB color temperature increment (amount of color shift) by pressing and holding the Fn (FUNC.) button while rotating the Sub-command dial (Figure 10-13, images 1 and 3). Choose 1, 2, or 3 (1 = 5 mired, 2=10 mired, 3 = 15 mired). I have selected a value of 2, or 10 mired, in Figure 10-14 (top-right value). The D300(S) will expose the sequence of shots according to what you've selected in step # 2. You can only adjust the bracket along the blue (b) to amber (A) values (cool to warm). The shots on the + side are toward blue and on the - side toward amber.

4. Take the WB bracketed picture series with only one Shutter-release button press (see note below).

Note: There is no need to press the shutter-release more than once to get the bracketed sequence of images. The highly-intelligent D300(S) knows the number of images you want in the bracketed sequence and takes them all with one press of
the Shutter-release button. If you have the WB bracket set to 3F, the camera actually only takes a single picture and then saves it to the memory card into three separate images, each with a different white balance. If you had 20 pictures on your card, when you press the shutter button once, you will then

have 23 pictures on the card. Three pictures in one shutter press!

Be sure to set your D300(S) back to normal bracketing in Custom setting e5 when you're done, unless you use WB bracketing frequently.

My Recommendation: Personally, I prefer to shoot in NEF (RAW) mode and make minor or major WB adjustments in the computer post-processing stage of the image's preparation. However, others want to use WB bracketing or Nikon wouldn't have given it to us.

Auto White Balance

Auto White balance works pretty well in the D300(S). As the camera's RGB meter senses colors, it does its best to balance to any white or mid-range grays it can find in the image. However, the color will vary a little on each shot. If you shoot only in Auto WB mode, your camera considers each image a new WB problem and solves it without reference to the last image taken. Therefore, you may see a variance in the color balance of each image when using Auto WB mode.

The Auto WB setting also has the fine-tuning screen mentioned in ***Method 2***. When you select Auto under Shooting Menu > White balance, you can scroll to the right to reach the next screen and fine-tune the colors. I don't see how this is particularly useful, since each image is likely to have slightly different color temperatures to deal with. That would mean the fine-tuning would have little value for more than an image or two. If you were shooting in the exact same light for a period of time, I suppose the fine-tuning would be useful; however, wouldn't it make more sense to do a PRE reading of the light for exact WB? This choice will depend on your shooting style and personal preferences.

My Opinion about Auto WB

If you are concerned with a series of images having the same color settings so that they look similar and require no extra post-processing, it is best to actually adjust the WB to one of the preset or measured values. This way, each image taken will have the same color balance. Auto WB takes control of

the image away from you! The D300(S) is very good at Auto WB, but I still shoot at a pre-defined WB setting most of the time. Call me old-fashioned!

If I'm at a party and I'm shooting images of friends for small snapshot prints, I'll often put my camera in Auto WB and Programmed auto exposure mode (P). Then, I'll just take lots of pictures without worrying about a thing. However, if I'm shooting for commercial reasons or am concerned with maximum image quality, I use a gray
or white card and balance my camera to the available light. I only rebalance if the light source changes. Use Auto for when you are not overly concerned about absolutely correct WB. It'll be close enough for average use and will return great images most of the time.

Should I worry about white balance if I shoot in RAW mode?

The quick answer is no, but that may not be the best answer. When you take a picture using NEF (RAW) mode, the sensor image data has no WB, sharpening, or color saturation information applied. Instead, the information about your camera settings is stored as "markers" along with the RAW black-and-white sensor data. Color information is only applied permanently to the image when you post-process and save the image in another format like JPEG, TIFF, or EPS.

When you open the image in Nikon Capture NX2, or another RAW conversion program, the camera settings are applied to the sensor data in a temporary way so that you can view the image on your computer screen. If you don't like the color balance or any other setting you used in-camera, you can

simply change it in the conversion software and the image looks as if you used the new setting when you took the picture.

Does that mean I am not concerned about my WB settings since I shoot RAW most of the time? No. The human brain can quickly adjust to an image's colors and perceive them as normal, even when they are not. This is one of the dangers of not using correct WB. Since an unbalanced image on your computer screen is not compared to another correctly balanced image side by side, there is some danger that your brain may accept the slightly incorrect camera settings as normal and your image will be saved with a color cast.

As a rule of thumb, if you use your WB correctly at all times you'll consistently produce better images. You'll do less post-processing if the WB is correct in the first place. As RAW shooters, we already have a lot of post-processing work to do. Why add WB corrections to the workflow? It's just more work, if you ask me!

Additionally, you might decide to switch to JPEG mode in the middle of a shoot, and if you are not accustomed to using your WB controls, you'll be in trouble. When you shoot JPEGs, your camera will apply the WB information directly to the image and save it on your card permanently. Be safe; always use good WB technique!

White Balance Tips and Tricks

When measuring WB with a gray or white card, keep in mind that your camera does not need to focus on the card. In PRE mode, it will not focus anyway, since it is only trying to read light values, not take a picture. The important thing is to put your lens close enough to the card to prevent it from seeing anything other than the card. Three or four inches (about 75 mm to 100 mm) away from the card is about right for most lenses.

Be careful that your lens does not cast a shadow onto the card in a way that lets your camera see some of the shadow. This will make the measurement less accurate. Also, be sure that your source light does not make a glare on the card. This problem is not as common since the card has a matte surface, but it can still happen. You may want to hold the card at a slight angle to the source light if the light is particularly bright and might cause glare.

Finally, when the light is dim, use the white side of the card since it has more reflectivity. This may prevent a *No Gd* reading in low light. The gray card may be more accurate for color balancing but might be a little dark for a good measurement in dim light. If you are shooting in normal light, the gray card is best for balancing. You might want to experiment in normal light with your camera to see which you prefer.

Sample Full WB Range D300(S) Image

The image shown in Figure 10-15 shows the full Kelvin color temperature range of your camera's white balance system. The D300(S) can be adjusted to shoot with a value as cool as 2500K, as warm as 10,000K, and any place in between. Pro-level flexibility and control!

Figure 10-15. Sample image showing range of D300(S) White balance system

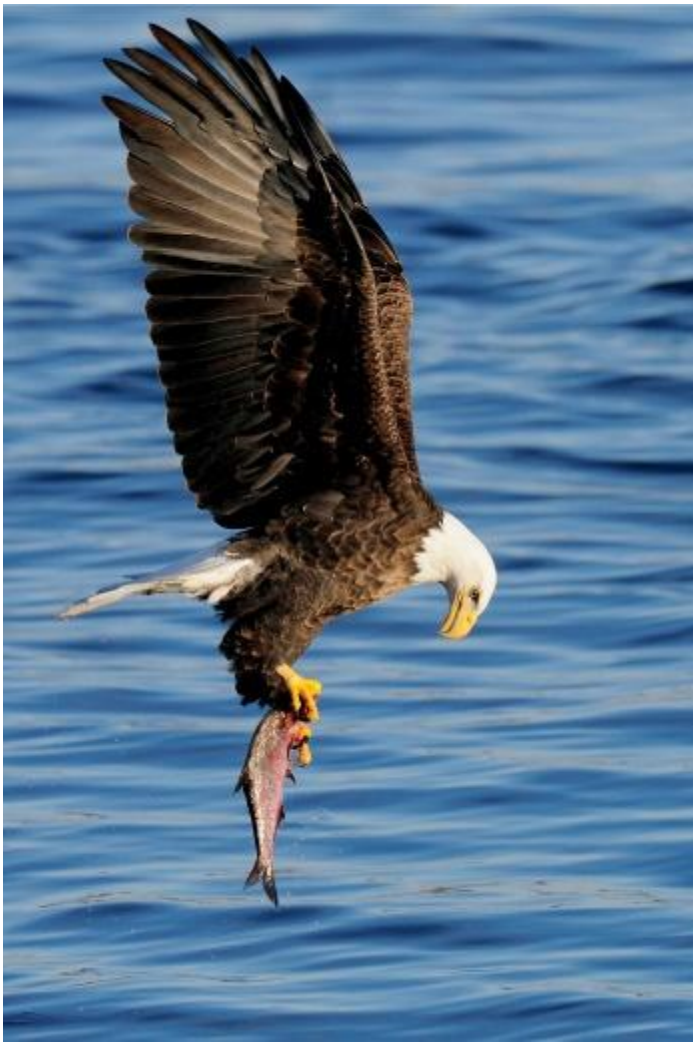
My Conclusions

With these simple tips and some practice, you can become a D300(S) WB expert. Pages 133-152 of your D300S User's Manual, or 127-146 of the D300 manual, have extensive WB information if you want another persepctive on Nikon WB.

Learn to use the color temperature features of your camera to make superior images. You'll be able to capture very accurate colors or make pictures with color casts reflecting how you feel about the image. Practice a bit, and you'll find it easy to remember how to set your WB in the field.

Now, let's turn our attention to the autofocus (AF) system in the D300(S). Many people find the various modes hard to remember and even a bit confusing. In the upcoming chapter, we'll examine how the AF modes work and how they relate to other important camera functions.

Chapter 11. Multi-CAM 3500DX Autofocus



Bald Eagle Fishing – Courtesy of David Summers (*dm1dave*)

With each progressive generation of semi-pro digital SLR cameras, Nikon has increased the number of autofocus (AF) points and area modes in the AF system.

For instance, the Nikon D100's Multi-CAM 900 AF module has 5 AF points and two area modes, and the Nikon D200's Multi-CAM 1000 has 11 AF points and four area modes. The D300(S)'s Multi-CAM 3500DX has 51 AF points, but only three area modes, thereby making the AF system simpler to operate, yet more robust.

What do we gain from all these extra AF sensor points and more powerful area modes? Is there anything else new and different? As we progress through this chapter, we'll discuss these questions in detail, along with how your photography will benefit most from the Multi-CAM 3500DX AF system.

What Is the Multi-CAM 3500DX Autofocus Module?

The Multi-CAM 3500DX autofocus (AF) module is a thoroughly improved, third-generation version of the excellent Multi-CAM 1000 autofocus module found in the Nikon D200. Where the Multi-CAM 1000 is limited to only 11 AF sensors, the Multi-CAM 3500DX has 51. In Figure 11-1 you can see what the new AF module looks like.

As we proceed through this chapter, I'm going to call the Multi-CAM 3500DX autofocus module by the simpler name of AF Module.

The AF Module has three AF-area modes:

- Single-point AF
- Dynamic-area AF
- Auto-area AF

It also has three Focus modes:

- Single-servo, or S, mode
- Continuous-servo, or C, mode (CL and CH)
- Manual, or M, mode

Figure 11-1. Multi-CAM 3500DX autofocus module

What's the difference? Basically, think of the AF-area modes as *where* the AF Module focuses and the Focus modes as *how* it focuses.

The D300(S) also allows you to control how fast and how often a picture is taken. We'll look at how the shutter frame rate (was called motor drive) works in relation to the AF system.

With the controls built into the D300(S)'s body, you'll be able to select whether the AF Module uses one or many of the 51 AF sensors to find your subject. You'll also select whether the camera grabs the focus and locks on a static subject or whether it continuously seeks new focus if your subject is

moving, and how fast (in frames per second, or FPS) it captures the images.

Of course, if you want to, you can turn AF off completely and simply use Manual focus. This comes in handy when you decide to use older non-CPU Nikkor manual-focus lenses, such as the excellent AI/AI-S prime and zoom lenses of yesteryear and the few primes that are available new.

In fact, one of the important features of the near-professional D300(S) is the fact that the camera will happily use older lenses. Many of us have our old favorites, such as the AI-S Nikkor 105mm f/2.5 portrait lens or the AI-S 35mm f/2. We can use AF/ AF-S lenses or virtually any of the F-Mount AI/ AI-S lenses. Do not attempt to mount any of the non-AI manual focus lenses from the late 1960s and early 1970s. This type of lens can damage the camera's aperture ring prong.

Setting Your Lens to Manual Focus

If you'd like, you can use the A-M switch found on most AF Nikkors to set the lens to Manual focus and override the AF system completely. If the AF Nikkor lens supports autofocus with manual priority (M/A), you can use the AF Module to obtain primary focus and then fine-tune it manually.

Tied in closely with the AF system is the Release mode. This determines how the camera takes the picture: one at a time or in continuous bursts. You can look through the Viewfinder to compose or use Live View mode (Lv), which allows you to use the Monitor on the back of the D300(S) instead of the Viewfinder to compose the image.

The AF Module supports 10 Custom settings, a1-a10. We've examined each of those Custom settings in the chapter titled **Chapter 4**. Also, see the chapter called **Chapter 3** for more information on how to use the Shooting menu banks. Let's consider the various features of the Multi-CAM 3500DX AF Module in detail.

Understanding the Focus Modes, AF-Area Modes, and Release Modes

(User's Manual – D300S page 61; D300 page 61)

The D300(S) has distinct modes for *how* and *when* to focus. We'll examine each of those modes as a starting point in our understanding of autofocus with the Multi-CAM 3500DX AF Module. We'll tie together information about the Focus modes, AF-area modes, and Release modes, since they work together to acquire and maintain good focus on your subject.

This chapter goes deeper than merely looking at the AF Module alone, since other related camera functions—like the Release modes—directly affect how the AF system performs.

Figure 11-2 shows the four controls we'll use in combination to change how the camera focuses and captures images. The caption helps you identify each control.

Notice in Figure 11-2, image 4, that the Multi Selector has a locking ring around it. At the top left of the ring you'll see a dot and an L. Move the switch to the dot setting, which unlocks the internal AF sensor point in use. Otherwise, you won't be able to move the AF point around the Viewfinder within the 51 available points.

If you want to use the D300(S) as a point-and-shoot camera, center the AF point rectangle in the Viewfinder and set the lock on L. Once locked, the camera will only use the center AF point in Single-point AF mode. I leave mine unlocked all

the time, but I check as I'm focusing to make sure I am using the AF point I want to use. I can use the Multi Selector to move a single AF point, or a group of points, around the array of 51 available points.

Figure 11-2. (1) Focus mode selector, (2) Release mode dial and lock release button, (3) AF-area mode selector, and (4) Multi Selector

Be aware that 15 of the 51 AF points on the D300(S) are cross-type sensors, which means that they will initiate focus in either a horizontal or a vertical direction. The center three columns by five rows of AF points are cross-type. All AF points outside of the three center columns are only sensitive in a horizontal direction. Figure 11-3 shows the AF points that are cross-type in red.

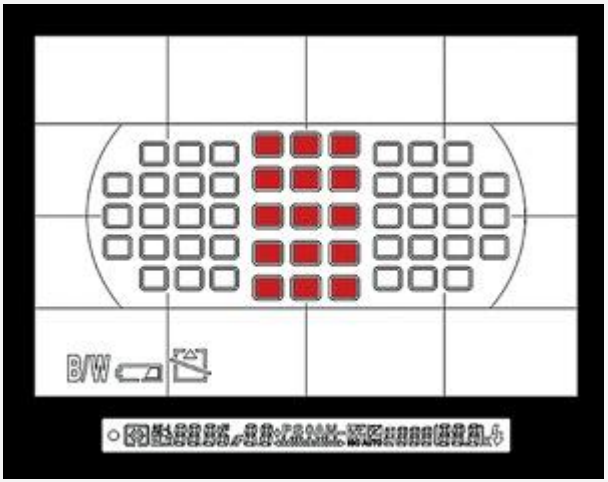


Figure 11-3. Cross-type AF points

The D300(S)'s Improved Sensor

The D300(S)'s autofocus sensor is different from and improves upon the sensor found in the D200 camera, on which only the single center AF point is a cross-type. In the D300(S), the actual underlying AF points seem to be well represented by the little rectangles in the Viewfinder, although a little less so, as I used sensors closer to the edges on my D300. In older Nikon cameras, the AF point's sensitive area was actually considerably wider than the brackets shown in the Viewfinder.

Focus Modes in Detail

The Focus modes allow you to control how the autofocus works with static and moving subjects. They allow your

camera to “lock” focus on a subject that is not moving or is moving very slowly. They also allow your camera to “follow” focus on an actively moving subject. Let’s consider the two servo-based Focus modes to see when and how you might use them best.

Single-servo AF Mode (S)

Single-servo AF works best when you select the proper mode for your subject. Is the subject moving or standing still?

Subject is not moving: When you press the Shutter-release button halfway down, the AF Module quickly locks focus on your subject and waits for you to fire the shutter. If your subject starts moving and you don't release pressure on the Shutter-release button to refocus, the focus will be obsolete and useless. Once you have focus lock, take the picture quickly. This mode is perfect for non moving subjects or in some cases even very slowly moving subjects.

Subject is regularly moving: This will require a little more work on your part. Since the AF system locks focus on your subject, if the subject moves even slightly, the focus may no longer be good. You'll have to lift your finger off of the Shutter-release button and reapply pressure halfway down to refocus. If the subject continues moving, you'll need to continue releasing and pressing the Shutter-release button halfway down over and over to keep the focus accurate. If your subject never stops moving, is moving erratically, or stops only briefly, Single-servo AF (S) is probably not the best mode to use. In this case, Continuous-servo AF (C) is better because it never locks focus, so you are able to follow your subject's movement.

Continuous-servo AF Mode (C)

Similar to Single-servo AF, you must be sensitive to the status of your subject to get the best results. Using Continuous-servo AF is slightly more complex.

Subject is not moving: When the subject is standing still, Continuous-servo AF acts a lot like Single-servo AF with the exception that the focus never locks. If your camera moves, you may hear your lens chattering a little as the auto focus motor makes small adjustments in the focus position. Since focus never locks in this mode, you'll need to be careful that you don't accidentally move the AF point off of the subject because it may focus on something in the background instead.

Subject is moving across the Viewfinder: If your subject moves from left to right, right to left, or up and down in the Viewfinder, you'll need to keep your AF point on the subject when you are using Single-point AF area. If you are using Dynamic-area AF or Auto-area AF, your camera will have the ability to track the subject across a few or all of the 51 AF points. We'll cover this in more detail in the upcoming section called AF-Area Modes in Detail.

Subject is moving toward or away from the camera: If your subject is coming toward you, another automatic function of the camera kicks in. It is called *predictive focus tracking,* and it figures out how far the subject will move before the shutter fires. Once you've pressed the Shutter-release button all the way down, predictive focus tracking moves the lens elements slightly to correspond to where the subject should be when

the shutter fires a few milliseconds later. In other words, if the subject is
moving toward you, the lens focuses slightly in front of your subject so that the camera has time to move the mirror up and get the shutter blades out of the way. It takes 45 milliseconds for the camera to respond to a press of the Shutter-release button.

Let's talk about the practical use of these functions. If you are shooting an air show, for instance, in 45 milliseconds a fast-moving airplane can move enough to slightly change the focus area by the time the shutter opens. If you press the Shutter-release button in one smooth motion all the way to shutter release, first autofocus occurs and then the mirror moves up and the shutter starts opening. That takes about 45 milliseconds in the D300(S). In the time it takes for the camera to respond to your press of the Shutter-release button, the airplane has moved slightly, which just barely throws the autofocus off. With predictive focus tracking, the camera predicts where the airplane will be when the image is actually exposed and adjusts the focus accordingly.

Predictive Focus Tracking

Let's say you were playing a ball game and you threw the ball to a running player. You would have to throw the ball slightly in front of the receiving player so that he and the ball arrive in the same place at the same time. Predictive focus tracking does something similar for you. It saves you from trying to focus your camera in front of your subject and waiting 45 milliseconds for it to arrive. That would be a bit hard to time!

Effect of Lens Movement

Lens movement (especially with long lenses) can be misinterpreted by the camera as subject movement. In that case, predictive focus tracking is tracking your camera movement while simultaneously trying to track your subject.

Attempting to handhold a long lens will drive your camera crazy. Use a vibration reduction (VR) lens or a tripod for best results. Nikon says that there are special algorithms in predictive focus tracking that allow it to notice sideways or up and down movement and shut this process down. So, predictive focus tracking is not activated by the D300(S) for sideways or up and down subject movement or panning.

AF-Area Modes in Detail

The AF-area modes are designed to give you control over how many AF points are in use at one time. These modes offer various ways to track subject movement.

Figure 11-4 shows the AF-area mode selector in the Single-point AF position.

Figure 11-4. AF-area mode selector at Single-point AF

Single-point AF

This mode uses a single AF point out of the array of 51 points to acquire good focus. As mentioned before, you can control which AF point is used by selecting it with the Multi Selector. In Figure 11-5, notice that the center AF point (of the 51 sensor points) is the one that provides focus information.

Figure 11-5. Center AF point selected

If two people are standing next to each other, with a gap in the middle, the single center AF point will examine the space between the two subjects. You can do one of two things to overcome this problem:

- You can get the focus first by pointing the center AF point at the face of one of the subjects, press the Shutter-release button halfway to focus, and then hold it down while recomposing the image. When you have recomposed the shot—without releasing the button—you'll press the Shutter-release button the rest of the way down and take the picture.
- You can compose the picture first by centering it however you'd like, then use the Multi Selector to move the single AF point until it rests on the face of one of the subjects. With the AF point repositioned, press the

Shutter-release button halfway down to get good focus and the rest of the way down to take the picture.

Either of these methods will solve the age-old autofocus problem of having a perfectly focused background with out-of-focus subjects caused by the center AF point concentrating on the background between the subjects.

Many of us will use Single-point AF mode most of the time. It works particularly well for static or slowly moving subjects. When I'm out shooting beautiful nature images or at a party shooting pictures of my friends, I'll use Single-point AF along with Single frame release mode (S) almost exclusively. If I'm shooting a wedding where the bride and groom are walking slowly up the aisle, Single-point AF and Continuous low speed release mode (CL) seem to work well for me.

Single-Point AF Example of Use

If a subject is not moving—like a tree or a standing person—then Single-point AF and S release mode (Single frame) will allow you to acquire focus. Once the focus is acquired, the AF Module will lock focus on the subject and it will not change. If the subject moves, your focus may no longer be perfect and you'll need to recompose while releasing and then pressing the Shutter-release button halfway down.

Often, if the subject is moving very slowly or sporadically, I won't even use CL release mode (Continuous low) but will leave the camera in S release mode. I'll tap the Shutter-release button halfway to acquire focus when the subject moves and tap it again as needed. When I'm ready, I simply press the

Shutter-release button the rest of the way down and I've got the shot!

> Release Priority Settings
>
> When you switch your D300(S) out of Single frame (S) release mode, you must be aware of how Custom settings a1 and a2 are configured. These two Custom settings are for Focus priority and Release priority. These are not the same as the Release modes, so don't get confused. It's important that you understand these two release "priorities" before you start using your camera on critical shoots or some of your images may not be in focus at all. I won't cover that information in this chapter, but we've looked at Custom settings a1 and a2 in detail in the chapter titled **Chapter 4**. Please, be very sure that you understand what they do! (Hint: Use Focus priority)

Dynamic-area AF

This mode is best used when your subject is moving. Instead of a single AF point used alone for autofocus, several sensors surrounding the one you have selected with the Multi Selector are also active. Figure 11-6 shows the AF-area mode selector in the Dynamic-area AF position.

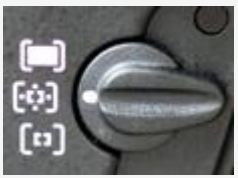


Figure 11-6. AF-area mode selector set to Dynamic-area AF

You can select the three different sensor patterns in Custom setting a3 (see Figure 11-8). The three primary patterns are represented in Figure 11-7. The first image shows 9 AF points in use. The second shows 21 points, and the third shows all 51 points.

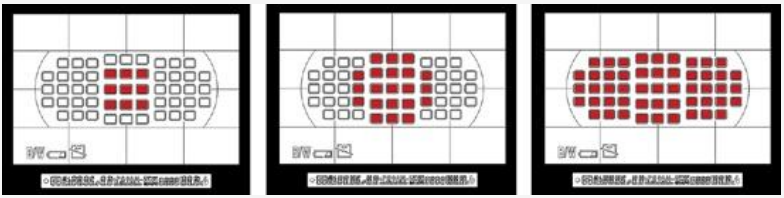


Figure 11-7. Three Dynamic-area AF point patterns (left to right) – 9, 21, 51

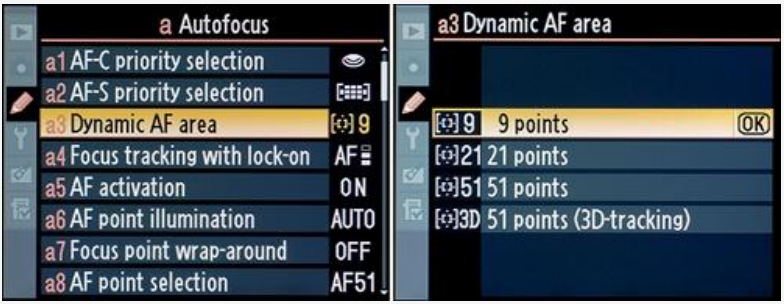

a Autofocus
a1 AF-C priority selection
a2 AF-S priority selection
a3 Dynamic AF area 9
a4 Focus tracking with lock-on
a5 AF activation ON
a6 AF point illumination AUTO
a7 Focus point wrap-around OFF
a8 AF point selection AF51
a3 Dynamic AF area
9 9 points OK
21 21 points
51 51 points
3D 51 points (3D-tracking)

Figure 11-8. Custom setting a3 – Dynamic-area AF point patterns

You can, of course, move the first two patterns (9 and 21 points) around the Viewfinder with your camera's Multi Selector. Unfortunately, the camera only shows you the center

AF point of the pattern, even though you have 9 points, 21 points, or 51 points selected. The AF point you can see in the Viewfinder provides the primary autofocus; however, the surrounding sensors (in the pattern you've selected in Custom setting a3) are also active. If the subject moves and the primary AF point loses its focus, one of the surrounding sensors will grab the focus quickly.

If the subject is moving slowly or predictably, you can use a smaller pattern, such as the 9 points selection in Custom setting a3. If the subject's movement is more erratic or unpredictable, you might want to increase the number of AF points involved. If 9 won't do it, try 21, and finally even 51 for subjects that are very unpredictable and move quickly.

Capturing a Bird in Flight

Let's imagine that you are photographing a bird perched in a tree but you want some shots of it in flight. You are patiently waiting for it to fly. Your camera is set to Dynamic-area AF with all 51 points active so that autofocus never fully locks and will track the bird instantly when it starts flying. You've already established focus with the AF point you selected using the Multi Selector, and you are holding the Shutter-release button halfway down to maintain focus. You've also set the Release mode to CH (Continuous high) so that you can fire off rapid bursts of images (6-8 per second). Suddenly, and faster than you can react, the bird takes to flight. By the time you can get the camera moving, the bird has moved to the left in the Viewfinder and the focus tracking system has reacted by instantly switching away from the primary AF point you established focus with and is now using other

AF points in the pattern of 51 to maintain focus on the bird. You press the Shutter-release button all the way down and the images start pouring into your memory card. You are panning with the bird, firing bursts until it moves out of range. You've got the shot! (See chapter opening image of the eagle by David Summers. This is a perfect example of using AF and focus tracking successfully.)

Can you see how flexible Dynamic-area AF is, especially when you adjust the patterns in Custom setting a3? If your subject will only move a short distance (or is moving slowly), you can simply select a pattern of 9 points. Maybe you're doing some macro shots of a bee on a flower and she is moving around the flower. Or you might be photographing a tennis game, in which case you could use 21 points to allow for more rapid side-to-side movement without losing the focus. You'll have to decide which pattern best fits your needs for the current shooting situation.

Using Dynamic-area AF and Custom setting a3, you can more accurately track and photograph all sorts, sizes, and speeds of moving subjects. The reaction speed of the AF system is somewhat slower when using either of the two 51 point modes since there is a lot more information being processed by the camera. Take that into consideration when shooting events. The mode called 51 points (3D-tracking) adds color-detection
ability to the tracking system. The camera will not only track by subject area, it will also remember the color of the subject as an additional tracking mechanism.

Auto-area AF

Auto-area AF turns the D300(S) into an expensive point-and-shoot camera. Use this mode when you simply have no time to think and would still like to get great images. The AF Module decides what the subject is and selects the AF points it thinks work best. Figure 11-9 shows the AF-area mode selector in the Auto-area AF position.

If you are using Sing le-servo AF (S) focus mode, you'll have an idea of what is going to be in focus because the AF points in use will flash up on the screen in red and then turn black for a period of one second. If, however, you are using Continuous-servo AF (C) focus mode, nothing will appear on the Viewfinder screen to give you a clue of what is going to be in focus. In Auto-area AF, your camera operates like a very expensive Nikon Coolpix point-and-shoot camera!

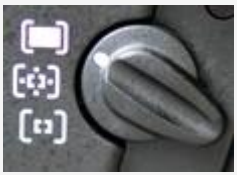


Figure 11-9. AF-area mode selector set to Auto-area AF

According to Nikon, if you are using a D or G lens, there is a bit of "human recognition technology" built into this mode, similar to the Coolpix. Since most of us will only be using Auto-area AF when we want to shoot for fun, a human subject that is closest to the camera is the most-likely subject anyway. Using Continuous-servo (C), your D300(S) can

usually detect a human and help you avoid shots with perfectly focused backgrounds and blurry human subjects.

We've covered the Focus and AF-area modes pretty well, so let's move on to the Release modes.

Release Modes in Detail

The D300(S) has several Release modes, which decide how many images can be taken and how fast. In Figure 11-10, we see the Release mode dial with its lock release button (press the lock release button and turn the dial).

Figure 11-10. Release mode dial set to CL and lock release button

Let's look at each Release mode in more detail. Here's the D300(S) Release modes:

- S – Single frame
- CL – Continuous low speed
- CH – Continuous high speed
- Q (D300S) or LV (D300)
- Self-timer
- MUP – Mirror Up

In the good-old film days, some of the release modes would have been called motor-drive settings since they are concerned with how fast the camera is allowed to take pictures.

We've already talked about these modes to some degree in the consideration of the AF-area modes.

Single Frame (S) Mode

This is the simplest frame rate since it takes a single picture each time you press the Shutter-release button fully. No speed here. This is for those shooting a few frames at a time. Nature shooters will often use this mode since they are more concerned with correct depth of field and excellent composition.

Continuous Low Speed (CL) Mode

This mode allows you to select a frame rate between 1 frame per second and 6 frames per second (FPS). If you have an MB-D10 battery pack mounted on your D300(S), you can also select 7 FPS. The camera cannot shoot over 6 FPS without the MB-D10 battery pack, although it will allow you to select 7 FPS. The default frame rate from the factory is 3 FPS, which seems about right for most of us. If you want more or less speed, simply adjust Custom setting d5 in the D300S or d4 in the D300 and select your favorite frame speed.

Continuous High Speed (CH) Mode

This high-speed mode is designed for when you want to go fast always! The camera will attempt to capture 6 frames per second every time you hold down the Shutter-release button. The manual states that the default frame rate without the MB-D10 battery pack mounted is up to 6 FPS, and it's 8 FPS when you do have the battery pack on your camera. So if you're a high FPS junkie, buy the battery pack!

> Requirements for Fast Frame Rates
>
> All of the settings for fast frame rates (high FPS) are based on the assumption that you are shooting with at least a 1/250s shutter speed, have a fully charged battery, and have some buffer space left in your camera's memory.

Quiet (Q) Mode (D300S only)

In the Release mode dial position previously occupied by the LV mode on the D300, Nikon added a new Q mode in the D300S. Since LV mode is activated by the Lv button on the D300S, there was no more need for the LV Release mode setting. Nikon took advantage of the gap left on the Release mode dial and gave D300S users a new Q mode.

Q mode, or quiet mode, is designed to make as little noise as possible when firing the camera's shutter. Instead of raising the reflex mirror, taking the picture, then lowering the mirror in one smooth step, the D300S ties the raising and lowering of the mirror to the position of the Shutter-release button.

When you press the Shutter-release button down and take a picture in Q mode, the mirror raises and the shutter fires. However, the mirror does not lower until you fully release the Shutter-release button.

If you want to reduce noise, you can hold the Shutter-release button down longer than normal and separate the raising and lowering of the mirror into two steps. This tends to draw out the length of the mirror/shutter action and reduces the perception of noise volume. In reality, the noise is not much quieter, but since it is broken into two parts, it sounds quieter. Try it!

Live View (Lv) Mode (D300 only)

Live view mode (Lv) uses the Monitor to display the subject instead of the Viewfinder. We'll examine using autofocus in Live view mode later in this chapter.

Self-Timer Mode

The factory default time out for the Self-timer is 10 seconds. You can use Custom setting C3 to set the time out to 2, 5, 10, or 20 seconds.

If you like to hear that little "beep beep beep" when the Self-timer is counting down the seconds before firing the shutter, you can control that sound with Custom setting d1 by selecting High, Low, or Off. If you select High or Low, a small musical note will appear in the top right of the Control panel.

Here are the three steps to use the self-timer after it has been configured (or left on factory defaults):

1. Use the Release mode dial to select Self-timer mode (the little symbol between Lv and MUP modes on the D300 and between the Q (Quiet) and MUP modes on the D300S).
2. Frame the photograph and focus the camera. If Focus priority is selected, you will not be able to start the self-timer unless the little green focus light is on in the Viewfinder.
3. Press the Shutter-release button all the way down and run like the wind for your position in the group. (Or, if you are using the self-timer as a cheap cable release, just stand there looking cool instead.) The AF-assist illuminator will blink once per second and the beeping will start. When the last two seconds arrive, the AF-assist illuminator will stop blinking and the beeping will double in speed. You are out of time once the beeping speeds up! The image is taken at about the time the beeping stops.

Tips on Stopping the Self-Timer

If you want to stop the self-timer, all you have to do is raise the flash. If the flash is already raised, just lower it and raise it again. Or you could just turn the camera off. Of course, that's like turning off your home computer while the operating system is busy with some task and will probably result in your memory card bursting into flames, your lens elements unseating, or some other ugly thing

happening. I think I'll just raise and lower the flash instead!

Mirror Up (MUP) Mode

This mode is very simple and very effective. I use this constantly when I am doing nature photography. Instead of having to find a lever to press like on the older film cameras, all you have to do to use Mirror Up mode is follow these simple steps:

1. Use the Release mode dial to select MUP mode.
2. Frame your picture and press the Shutter-release button halfway down to focus. Then press the Shutter-release button the rest of the way down to raise the mirror.
3. Press the Shutter-release button all the way down one more time to take the picture.

For a complete consideration of Custom settings a1 to a10, please see the chapter titled **Chapter 4**. When considering autofocus issues, it is very important that you read the information in that chapter concerning Custom settings a1 and a2, especially the section titled **Using Custom settings a1 and a2**. If you don't read and understand this special section, you may get quite a few out-of-focus images as a result.

Don't Touch That Shutter Release!

Please buy yourself an electronic shutter-release cable (e.g., Nikon MC-30) so that you're not using your finger to press

the Shutter-release button when the camera is on a tripod and in MUP mode. Touching the camera seems a bit silly after going to all that trouble to stabilize the camera and raise the mirror. A finger press could shake the entire tripod! If you do not have an electronic cable release, simply wait 30 seconds after raising the mirror and the camera will fire on its own. There is a built-in 30-second delay after you've raised the mirror and then the shutter will fire. This could be used as a slow but high-quality self-timer.

Autofocus in Live View Mode

Normally, you would not use the Monitor to compose an image since this is not as stable as holding the camera close to your body and could result in shaky images.

However, in some instances a live view through the Monitor is quite useful. For instance, what if you want to take an image of a small flower growing very close to the ground? You could lie down on the ground and get your clothes dirty or you can use LV mode instead. LV mode allows you to see what your camera's lens sees without using the Viewfinder. Anytime you need to take pictures up high or down low, or even on a tripod, the D300(S) will happily give you that power with its LV mode.

Entering Live View

On the D300, Live view mode is activated by selecting the LV position on the Release mode dial and pressing the Shutter-release button fully (see Figure 11-11, image 1).

Figure 11-11. Entering Live view with external camera controls

The D300S has a dedicated Lv button that simplifies the process considerably. Press the Lv button and the camera is immediately in Live view mode (see Figure 11-11, image 2).

Selecting Hand-held or Tripod Modes

Next, you'll need to set the Shooting Menu > Live view mode selection to Hand-held or Tripod mode. Figure 11-12 shows the screens you'll see when you select one of the modes. The first screen shows Hand-held mode (red arrow), while the second shows Tripod mode (red arrow).

Figure 11-12. Hand-held and Tripod Live view modes

Selecting a Release Mode Frame Rate

On the D300S you'll use the menus shown in Figure 11-13 to select one of the modes. You can use the Release mode dial to select a frame rate (S, CL, or CH).

On the D300, you'll set the Shooting Menu > Live view > Release mode selection to Single frame, Continuous low-speed, or Continuous high-speed (see Figure 11-14).

The cameras are quite different in how they initialize Live view mode and in the screens used for its adjustment. Use whichever FIG applies to your camera as a reference for using Live view mode.

Following are the steps to use Live view mode after you've selected it with the external camera controls and configured the Release mode.

Figure 11-13. Choosing a Live view mode on the D300S

Figure 11-14. Choosing a Live view and Release mode on the D300

LV Hand-Held Mode (uses phase-detection AF):

1. Point your camera toward your subject. With the D300 you'll need to press the Shutter-release button fully to raise the mirror and enter Live view mode. This allows you to use the Monitor to view your subject. With the D300S you'll enter Live view mode as soon as you press the Lv button. (see Figure 11-11 and Figure 11-12). Figure 11-13 and Figure 11-14 show the screens used for configuration.

2. Press the Shutter-release button halfway down to activate phase-detection AF. The Monitor will go dark while the camera auto focuses. Give it just a moment to complete autofocus; this saves time later! Release pressure from the Shutter-release button and the mirror will drop. Your subject will be displayed on the Monitor (see Figure 11-12, image 1).

3. Compose your picture quickly.

4. Press the Shutter-release button all the way down again. The mirror will drop, phase-detection AF will activate, and the shutter will fire. If you don't press the Shutter-release button all the way down, but go only halfway, the mirror will drop and phase-detection AF will activate but no picture will be taken. This is a good way to refocus if your subject has moved.

5. Repeat as necessary. When you are done with Live view mode, be sure to set the camera back to normal Viewfinder mode by turning away from the Lv setting on the Release mode dial (D300) or by pressing the Lv button again (D300S)

LV Tripod Mode (uses Contrast-detection AF):

1. Enter Live view mode, frame your subject, and press the AF-ON button to initiate autofocus. The Shutter-release button will *not* cause AF to happen in Tripod mode. You must use the AF-ON button.

2. Use the Playback zoom in button (looks like a magnifying glass with a plus sign in it) to enlarge the image so that you can see whether the image is in focus.

3. Press the AF-ON button to top off the focus. This can take some time (especially in low light) since the camera is using Contrast-detection AF to find the best focus. You will see the image on the Monitor go in and out of focus before it finally settles on the correct focus. Be patient!

4. Without moving the camera, press the Shutter-release button all the way down to take the image. The mirror

will go up and down twice to take the picture. It sounds entirely weird but it works!

My Conclusions

I've followed the development of the Nikon autofocus systems since back in the late 1980s. My first camera with autofocus was the Nikon F4 professional film SLR. Throughout the last 20 years I've experienced each new level of autofocus released by Nikon. It's gotten better and better with each new generation!

In the digital bodies, the first-generation D100 set new standards, followed by the second generation D200. Now the third-generation has arrived and my reaction has been, "Wow!"

This is a powerful leap forward. Autofocus with the D300(S) is a real pleasure. It has a more powerful AF system than any camera before it and yet is somewhat simplified in its operation by comparison.

The system can still come across as complex, but if you spend some time with this chapter, you should come away with a much greater understanding of the D300(S)'s AF Module. You'll better understand how you can adapt your camera to work best for your style of photography. Enjoy your D300(S)'s excellent Multi-CAM 3500DX autofocus system!

In the final chapter of this book, we'll examine how to use the built-in flash unit in your camera and even consider a bit about how Nikon's CLS (Creative Lighting System) works.

Chapter 12. Speedlight Flash Photography

Contemplation – Courtesy of Richerd Reynolds (*slartybartfast*)

Light is the photographer's friend!

Controlling light is the primary thing that separates excellent from not-so-excellent photographers. On beautiful, balmy summer evenings, the light wraps around the land and gives us that so-called "golden hour" look that we crave. However, some days are rainy and some are dark and gloomy.

As photographers we want to take pictures. We don't want to stop just because the sun won't cooperate. We need light that we can take with us, and we want it to be available quickly. We need a Speedlight!

Fortunately, your D300(S) has a built-in Speedlight. The little pop-up unit that's always with the camera is a Nikon Speedlight flash. That's Nikon's name for its flash units, large and small.

From the tiny pop-up that comes on your camera on up to the flagship SB-900 flash, you have several choices. You can even create a wireless flash array using your camera, a commander unit, and several Speedlight flash units.

Figure 12-1. Built-in pop-up Speedlight

This type of setup is called the Nikon Creative Lighting System (CLS). We'll look at CLS later in the chapter. First let's examine some general flash information and explore how the D300(S) uses flash. How can you determine just which flash will work best for your style of shooting? Will the pop-up flash be enough with its limitations in range, or do you need more power to reach out and light up more distant subjects? How does one rate the power output of a flash unit?

This chapter contains information that will help you make a good choice in flash units. First, we'll look at how to rate the power output of a flash by examining the guide number.

What Is a Guide Number?

The guide number (GN) for a flash unit measures how well it can light a subject at a specific ISO sensitivity and with a precise angle of view (wide-angle vs. telephoto lens). To put it simply, a higher guide number means the flash is more powerful, all other things being equal.

Be careful when you are deciding on an external flash unit to use, whether it is a genuine Nikon Speedlight or an aftermarket unit. Simply comparing the GN is not enough. You must understand the settings the GN is based upon. Many flash units have zoom capability and will be able to light up subjects farther away when zoomed out. However, imagine buying a flash unit from a manufacturer who publishes the GN based on a longer zoom position and then comparing it to a different flash unit based on a shorter non-zoom position. The GN rating on the flash that is zoomed out would seem to be higher than the same unit not zoomed out. However, unless you are comparing flash unit guide numbers with exactly the same settings, it is truly like comparing apples and oranges. For instance, to get an exact comparison of guide numbers, you would have to know the following:

- Distance from flash head to the subject
- Aperture f-stop number in use on camera
- ISO sensitivity of your camera's image sensor
- Angle-of-view setting on the flash's zoom head
- Actual angle of view your lens provides (must match flash head)

- Temperature of ambient air

In reality, the camera has little to do with figuring the GN other than providing an aperture f-stop number and ISO sensitivity. So, how can you decide what GN is best without whipping out a scientific calculator? Just look at the flash unit advertisement to see what the GN is based on. Here are the most important figures:

- Flash "zoom" angle-of-view setting, (e.g., 18mm or 105mm)
- ISO sensitivity

If you see a flash unit advertised as GN 98, just realize that this is not enough information to make a decision. In this instance, the number 98 is the GN. It represents the number of feet from flash head to subject (98 feet). In countries that use the metric system, an equivalent GN is 18, which represents the number of meters from flash head to subject (18 meters). That number by itself is simply incomplete. Don't buy a flash unit based solely on a GN like 98 or 100 or 111. Here's why.

Let's think about this for a second. Let's say I were a manufacturer who was desperate to sell you a flash unit. I might stretch things a little bit. I might say my Super-Duper flash unit has a GN of 98 (feet) or 18 (meters), hoping you won't ask about the settings I used to figure the number. Here is a comparison of two flash units with a so-called "comparable" guide number:

Super-Duper Flash Unit GN Information

- GN 98 (18)
- 80mm zoom-head setting

- ISO 200 sensitivity

Nikon SB-400 Flash Unit GN Information (real values)

- GN of 98 (18)
- 35mm zoom-head setting
- ISO 100 sensitivity

Both of the flash units have the same GN listed, so which one is really more powerful? The Nikon SB-400 will literally blow away the Super-Duper unit. Yet, the Super-Duper manufacturer lists the same GN! The Super-Duper unit must have its zoom head set to 80mm, a much narrower beam, and have twice the camera ISO sensitivity to equal the Nikon SB-400 unit. Mr. Super-Duper is hoping you won't check the fine print at the bottom of the advertisement so that you'll think his much less powerful unit equals the Nikon SB-400. Surprisingly, there are flash unit manufacturers who will do exactly what I am describing.

What can you learn from this? The actual GN itself is not enough to make a decision on which flash unit to use. You must know what the GN is based on in order to make an informed decision. Take your time when buying a flash unit. You're safe in sticking with Nikon's Speedlights, since the ratings are well known and they're designed to support all the features of your D300(S).

There are also excellent aftermarket flash units available from manufacturers like Vivitar, Sigma, Sunpak, Metz, Braun/ Leitz, and others. Examine the underlying settings and not just the guide number itself. What the GN is based on is as important as the actual number.

For comparison purposes, the GN of the D300(S)'s pop-up Speedlight is 56 (feet) or 17 (meters) at ISO 200. Nikon's flagship Speedlight, the SB-900, is 157.5 (feet) or 48 (meters) at ISO 200. Obviously, the larger external flash unit has a lot more power and can light up subjects that are farther away.

> Technical Guide Number Information
>
> For those technically minded among us, the GN is based on a specific formula: GN = distance × f/number. It is based on the inverse-square law, which states that doubling the GN requires four times more flash power. So, a flash with a GN of 100 is four times more powerful than a flash with a GN of 50. The guide number represents an exposure constant for a flash unit. For example, a GN of 80 feet at ISO 100 means that a subject 20 feet away can be completely illuminated with an aperture of f/4 (80 = 20 × 4) using a sensitivity of ISO 100. For the same guide number and an aperture of f/8, the light source should be 10 feet from the subject (80 = 10 × 8). Fortunately, your camera and flash combination are capable of figuring the correct values for you when you use TTL mode.

Now, let's examine the various flash modes found in the Nikon D300(S) camera. Since I have no way of knowing which flash unit you'll be using, I'll write from the perspective of the pop-up flash. Almost everything mentioned next applies to the built-in flash and most Accessory shoe mounted Nikon-brand Speedlight units you are using, plus many Nikon-specific aftermarket flash units.

Flash Modes

(User's Manual – D300S page 169; D300 page 171)

The built-in pop-up flash has two types of flash metering:

- ***i-TTL Balanced Fill Flash*** **–** The flash fires in two stages. Nikon calls stage 1 "monitor preflash". The built-in flash emits a series of almost invisible flashes before the main flash burst fires (stage 2). The preflashes allow the 1005-pixel RGB flash sensor to examine all areas of the frame for reflectivity. The camera uses the Matrix meter and distance information from a D or G lens to calculate a flash output that is balanced between the main subject and ambient lighting.
- ***Standard i-TTL*** **–** When the Spot meter is used the camera automatically switches to standard i-TTL. This mode ignores the background and concentrates on whatever is under the camera's selected AF point. For the most accurate flash output for a specific subject, just set your camera to use its Spot meter and the flash will meter for the subject only.

In addition to the types of flash metering, the camera also has five Flash modes that affect how it controls light. We'll consider each of them shortly, but first let's talk about how the shutter blades work when the flash fires. This is basic information that will help you understand the Flash modes. To fully know what's happening when the flash fires, you must understand a little bit about the shutter curtains in your camera.

What Are Monitor Preflashes?

When you press the Shutter-release button with the pop-up flash open, the camera's built-in Speedlight fires several brief preflashes and then fires the main flash burst. These preflashes fire whenever your camera is set to TTL mode, even if your D300(S) is controlling multiple flash units through CLS (discussed in an upcoming section). The camera can determine a very accurate exposure by lighting your subject with a preflash, adjusting the exposure, and then firing the main flash burst.

Your D300(S) exposes the sensor to light for specific periods of time. This is controlled by the camera's shutter speed. The actual exposure is handled by two moving objects called curtains. The D300(S) has two shutter curtains. One gets out of the way of the sensor to start the exposure, and the other replaces it to stop the exposure. The first one is called the front curtain and the second one is known as the rear curtain. In this context, the "front" and "rear" are not important as indicators of position but as indicators of which moves first and which moves second. The flash must fire when the first, or front, curtain is fully open and before the second, or rear, curtain starts closing. The time between the front curtain opening and the rear curtain closing is the actual shutter speed.

The whole sensor must be uncovered when the flash fires in normal Flash modes (non-Auto FP). If the shutter speed is too fast, the rear curtain will closely follow the front curtain and partially block the sensor when the flash fires. That's why the shutter speed is limited to a maximum of 1/250s on the D300(S). Faster than that and the sensor is always partially

covered by one of the shutter curtains. If the flash fires while one of the curtains covers part of the sensor, then that part of the sensor would not get a proper exposure from the flash and there would be an underexposed black band in your image.

So, the whole point of the Flash modes is to determine at what point during shutter curtain movement the flash fires and whether it's the main source of light or some ambient light is mixed in. Keep this information in mind as we discuss the Flash modes.

Here are the controls and steps used to select one of the five Flash modes (see Figure 12-2):

Figure 12-2. Flash mode controls

1. Hold down the Flash mode button on the front of your camera, just below the D300 or D300S logo (see Figure 12-2, image 1).
2. Turn the rear Main command dial while watching the various modes change on the Control panel (see Figure 12-2, images 2 and 3).
3. Release the Flash mode button to lock-in the Flash mode.

Following are the five modes and a description of how each works.

Front-Curtain Sync

In Front-curtain sync mode (also known as Fill flash in Nikon litereature), the camera tries its best to balance the light if you're using a lens that has a CPU in it (see Figure 12-3). Older non-CPU lenses cause the camera to ignore the ambient light completely and use only the flash to expose the subject. A CPU lens, like a Nikkor G or D lens, balances ambient light and light from the flash equally and works to make the light look very natural. If you use this correctly outdoors, it will be hard to tell that you were using flash, except for the catch light in your subject's eyes and the lack of damaging shadows. The flash simply fills in some extra light without overpowering the ambient light. In a situation where there is very little ambient light, the camera will use only the flash to get a correct exposure. It only balances with ambient light if there is enough ambient light to balance with in the first place.

Figure 12-3. Front-curtain sync

There is a side effect to using this mode with slow shutter speeds. Front-curtain sync simply causes the flash to fire as soon as the front shutter curtain is out of the way and before the rear shutter curtain starts closing. If there is some ambient light and the shutter speed is long—like 1/2 second—and the subject is moving, you'll see a well-exposed subject with a blurry trail in front of it. The flash correctly exposes the

subject as soon as the front curtain gets out of the way, but the ambient light continues exposing the subject before the rear curtain closes, and since it is moving you may see a ghostlike blur before or in front of the well-exposed moving subject in the picture. This can be seen at shutter speeds as fast as 1/60s if ambient light is strong enough and the subject is moving.

Red-Eye Reduction

Red-eye reduction is not really a flash mode (see Figure 12-4). It simply means that the AF-assist illuminator shines brightly in the face of your subject before the flash fires using Front-curtain sync mode. It is hoped that the bright AF-assist illuminator will cause your subject's pupils to close somewhat and reduce the red-eye effect. It acts like you are using Front-curtain sync mode otherwise.

Figure 12-4. Red-eye reduction

Red-Eye Reduction with Slow Sync

Red-eye reduction with slow sync works the same way as Slow sync, except that the AF-assist illuminator light shines before the flash fires (see Figure 12-5). This lets you take pictures with an emphasis on ambient light while preventing the extra flash exposure from causing red-eye.

Figure 12-5. Red-eye with slow sync

Slow Sync

Slow sync mode lets the camera use ambient light to make a good exposure and then fires the flash to add some extra light, rounding out the shadows or better exposing a foreground subject (see Figure 12-6). Use this mode in people shots outdoors or where you want ambient light to provide the primary exposure and the flash to provide more exposure in one area. This is closely related to Front-curtain sync, except that the ambient light is more important to the camera than the light from the flash. Be careful when using this mode indoors since it will expose for ambient light and only assist with some flash light. You can get some terrible ghosting and blurred handheld shots when using Slow sync indoors. Ambient light rules in this mode!

Figure 12-6. Slow sync

Rear-Curtain Sync

Rear-curtain sync is the reverse of Front-curtain sync (see Figure 12-7). The flash waits to fire just before the rear curtain starts to close. The entire shutter speed time is just ending when the flash fires. This causes a ghosting effect for moving subjects in higher ambient light with slow shutter speeds. You press the Shutter-release button, the front curtain opens, ambient light starts hitting the sensor, and the sensor starts recording the subject. As the shutter is about to close, the flash fires, exposing the subject at its current position. The subject was fully exposed by the flash at the end of the shutter speed time, so the ambient light had time to register the subject before the flash fired, thereby making a blurred ghost behind or after the well-exposed subject.

Figure 12-7. Rear-curtain sync

My Recommendation: I use Front-curtain sync for normal, everyday flash. It balances ambient light with flash light. Switch to Spot meter mode if you want extremely accurate exposures of a particular subject.

External Speedlight flash units offer modes like TTL BL, TTL BL FP, TTL FP, or just TTL. TTL stand for through-the-lens, and represents an i-TTL mode (intelligent though-the-lens). BL stands for balanced. FP stands for Auto FP high-speed sync mode. Refer to your flash unit's user's manual for exact details on how to switch between modes on the flash unit.

When I'm shooting outside (only) and want a great exposure of my subject's surroundings, along with the subject, I'll often use Slow sync mode. The only caveat to this is that you must be aware that slow shutter speeds will cause ghosting and blurring as the light falls.

I don't use the Red-eye reduction modes often because it seems to confuse people. They think the initial shine of the AF-assist illuminator is the flash firing and then look away just as the main flash fires. If you are going to use Red-eye reduction modes, you might want to tell your subject to wait for the main flash.

Rear-curtain sync creates a cool effect if you want to show a ghosted image stretching out behind your subject when you use slow shutter speeds. Rear-curtain sync is sometimes used by sports shooters in situations where there may be some blurring from fast movement in low light. It is much more acceptable to have a ghosted blur after the subject since it implies motion. Front-curtain sync makes the blur show up in front of the subject, which just plain looks weird.

I suggest experimenting with all five of these modes. You'll need to use each of them at various times.

Now let's look into the Nikon Creative Lighting System (CLS), which allows your camera to control multiple flash units in a wireless array.

Auto FP High-Speed Sync

The D300(S) has an additional mode that lets it exceed the normal flash sync speed of i/250s. This is called Auto FP high-speed sync mode. Remember how normally both the front and rear shutter curtains must be out of the way before the flash fires? Auto FP high-speed sync mode lets you use shutter speeds all the way up to 1/8000s. At these speeds, the rear shutter curtain follows the front shutter curtain so closely that only a traveling narrow horizontal slit is exposing the sensor at any given time.

When you select a sync speed faster than the normal 1/250s, the camera fires the flash in thousands of short pulses instead of one big flash. The flash fires in a series of pulses as the narrow shutter curtain slit moves across the face of the sensor. The faster the shutter speed, the less power the flash can manage. You must be able to depend on ambient light in addition to flash when using Auto FP high-speed sync mode, especially at higher shutter speeds. However, this let's you shoot your fast lenses (e.g., F/1.4, F/2.8) wide open while in direct sunlight, due to the very fast shutter speed.

You can expose properly with very shallow depth of field due to a large aperture, even though the light is very bright. We covered this mode in detail in the chapter titled **Chapter 4**, under the sub-heading **Flash Sync Speed – Custom setting e1 (D300S and D300).**

Nikon Creative Lighting System (CLS)

(User's Manual – D300S page 348; D300 page 357)

CLS is an advanced wireless lighting technology that allows you to use your imagination in designing "creative" lighting arrangements. No wires are used since the CLS-compatible remote flash units are controlled by a "commander device", or what Nikon refers to as a "master flash unit". You can use the Commander mode built into the D300(S), or you can use an Accessory shoe-mounted commander such as the SB-900 Speedlight, SB-800 Speedlight, or SU-800 Wireless Speedlight Commander unit. The SB-600 only has a remote mode, so it cannot be used as a commander unit.

We'll only consider the built-in Commander mode in this chapter. I suggest buying a copy of *The Nikon Creative Lighting System* by Mike Hagen (also published by Rocky Nook and NikoniansPress). It goes into excellent detail on how to use CLS with multiple banks of various external Nikon Speedlight flash units.

Using CLS, you can easily experiment with setups and flash output. You can obtain a visual preview of how things will look by pressing the Depth-of-field preview button, which will fire the pulsed modeling capability within Nikon's Speedlights.

There is no need to figure complex lighting ratios when you can control your flash banks right from the camera and see the results immediately. CLS simplifies the use of multiple

flash-unit setups for portraiture, interiors, nature, or any situation where several Speedlights need to work in unison.

You can simply position the flash units where you'd like them to be and let CLS automatically figure the "correct" exposure, or you can change the lighting ratios directly from the Custom Setting Menu > e3 Flash cntrl for built-in flash > Commander mode menu of your D300(S).

Nikon's Creative Lighting System is world-class in power and not too difficult to use. The Nikon D300(S) camera contains everything you need to control a simple or complex CLS setup. Let's learn how to use it!

How Does the D300(S) Fit into the CLS Scheme?

In Commander mode, the camera functions as a controller for multiple Nikon Speedlight flash units. While the professional-level Nikon D3/D3S/D3X requires the separate purchase of an Accessory shoe-mounted commander device, the D300(S) body has full Nikon Creative Lighting System (CLS) technology built right into the camera.

You can use normal i-TTL flash technology with the camera's built-in flash or use Commander mode and the built-in flash to control up to two groups of an unlimited number of external Nikon Speedlight flash units. Nikon makes the powerful SB-900 flash unit, along with its slightly less powerful SB-600 brother and several other smaller Speedlight units, such as the SB-400 or SB-R200.

Many of us using the D300(S) will have an external flash unit or two—usually the SB-900, SB-800 (now discontinued), or SB-600. The SB-R200 flash is designed to be
used on various brackets available from Nikon and will work in conjunction with the bigger Speedlight flash units. The Nikon D300(S) is happy to let you arrange professional lighting setups using these relatively inexpensive and very portable Speedlights.

The cool thing about the D300(S) is that it can serve as a CLS flash commander device or use Nikon's other CLS flash commander devices at will. You have great control with this fine camera!

What Is Commander Mode and How Does It Work?

Commander mode is controlled through a menu on your D300(S). If you examine the Commander mode screen shown in Figure 12-8, you'll note that you have controls for the built-in flash and two groups, or banks, of external flash units. You'll also see that you can set exposure compensation for either of these.

Figure 12-8. Commander mode setup screen

If you leave Custom setting e4 > Modeling flash set to the factory default ON, you can test-fire your Speedlight's built-in modeling light by pressing and holding the camera's Depth-of-field preview button. Or, if you prefer, simply take a picture and look at it.

If the main flash is too bright, you can either move it farther away or dial its power down by setting compensation (Comp.) to underexpose a little. You can set Comp. in 1/3-stop increments, so you have very fine control of each group's flash output. The point is that you can experiment until you get the image just the way you want it. Sure, you could do things the old way and use a flash meter or get your calculator and figure out complex fill ratios. Or, you can simply use CLS to vary your settings visually until the image is just right (see Figure 12-9).

Figure 12-9. J. Ramón Palacios used a Commander device and two SB-800 Speedlights to take this CLS photo.

Isn't it more fun to simply enter some initial settings into your Commander mode screen and then take a test shot? If it doesn't look right, change the settings and do it again. Within two or three tries you'll probably get it right, and you will have learned something about the performance of your Creative Lighting System. In a short time you'll have a feel for how to set the camera and flash units and will use your flash/ camera combo with authority.

Using Commander Mode

Let's start by putting your camera into Commander mode. We'll do that by changing Custom setting e3 to Commander mode. Look at Figure 12-10 for the screen series to set this option.

Since this section is about controlling multiple flash units, we'll have to change that setting in Commander mode, as shown in Figure 12-10, image 4.

We'll examine each of the settings available under the Commander mode. TTL is the easiest to use since it allows you to set exposure compensation for the built-in flash as well as each of your flash groups. Next, we'll look at M mode, since that gives you fine control of your flash from full-power (1/1) to 1/128 power. We'll briefly look at AA mode. Then finally, we'll consider the - - (double-dash) mode, which prevents the camera's built-in flash from firing the main flash output but does not stop the necessary monitor pre-flashes, nor the firing of the external flash units.

Figure 12-10. Commander mode setup screens

When your camera is controlling external Speedlights using its built-in Commander mode, you must always raise the built-in flash on your D300(S). The camera communicates

with the external flash units during the monitor pre-flash cycle.

Always position the sensor windows on the external Speedlights where they will pick up the monitor pre-flashes from the built-in flash. Take particular care when not using a tripod.

Commander Mode Settings

Basically, the Mode fields on the Commander mode screen will display the selections listed below. Use the Multi Selector to change the values, as shown in Figure 12-11. Here are the Mode settings:

- TTL, or i-TTL mode
- AA, or Auto Aperture mode
- M, or Manual mode
- --, or double-dash mode (what else would one call it?)

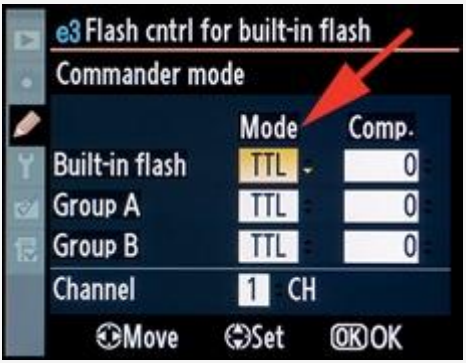


Figure 12-11. Mode options

- ***TTL Mode –***
  The TTL setting allows you to use the full power of i-TTL technology. By leaving Mode set to TTL (as shown in Figure 12-11) on the Built-in flash or Group A or B, you derive maximum flexibility and accuracy from all your flash units. In this mode, the Comp. setting will display exposure values from -3.0 EV to + 3.0 EV, a full6-stop range of exposure compensation for each group of Speedlights. You can set the Comp. in 1/3 EV steps for very fine control.

- ***AA Mode –*** I am only briefly touching on the AA mode, since it is an older noni-TTL technology included for those accustomed to using the older technology. With the SB-900 or SB-800, it is used primarily by cameras not compatible with the Creative Lighting System. It is not available for the built-in Speedlight on the D300(S), or for the SB-600. You can safely ignore the AA mode, unless you want to experiment with it. It may not provide as accurate a flash exposure as TTL mode though, since it is not based on the amazing i-TTL technology. Otherwise, it works pretty much the same as TTL mode.

- ***M Mode –*** This allows you to set different levels of flash output in 1/3 E V steps for the Built-in flash or the Speedlights in Group A or B. The settings you can put in the Comp. field are between 1/1 (full) and 1/128. The intermediate 1/3-stop settings are presented as decimals within the fractions. For example, 1/1.3 and 1/1.7 are 1/3 and 2/3 stops below 1/1 (full). Many people are used to working with flash units this way, so it seems more

familiar. CLS is willing to oblige those experienced in working manually.

- **-- *Mode*** (double-dash mode) – The built-in Speedlight will not fire the main flash burst in this mode. It will fire the monitor pre-flashes, since it uses them to determine exposure and communicate with the external flash groups. Be sure you always raise the camera's built-in flash in any of the Commander mode modes; otherwise, the external flash groups will not receive a signal and won't fire their flashes.

Since the built-in flash's monitor pre-flashes always fire, be careful that they do not influence the lighting of your image. Use a smaller aperture, or move the camera farther away from your subject if the pre-flashes add unwanted light.

When you set the Mode for Group A or B to double-dash (- -) mode, that entire group of flashes will not fire any flash output. You can use this mode to temporarily turn off one of the flash groups for testing purposes.

Setting the Channel (CH) for Communication

Look at Figure 12-12, or your camera's Commander mode screen, and you'll notice that just below Group B there is a Channel (CH) selection. The number 1 (factory default) is the communication channel your D300(S) expects to use to talk to the external flash groups.

There are four channels available, just in case you happen to be working in the vicinity of another Nikon user who is also

using Commander mode. By using separate channels, you won't interfere with each other.

Note: It is important to realize that all external flashes in all groups must be on the same channel. This involves setting up your individual flash units to respond on a particular channel.

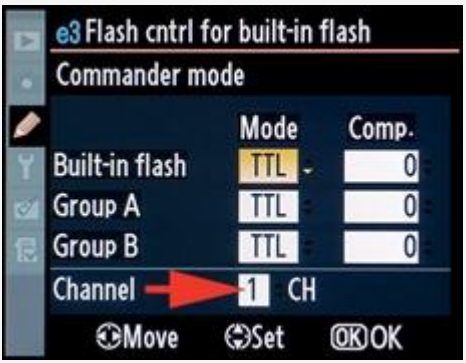


Figure 12-12. Channel selection

They might be in separate groups but must be on the same channel. Each external Speedlight flash will have its own method for selecting a Group and Channel. You'll need to acquire Mike Hagen's book, or read the user's manual for your flash unit.

Now, let's look at the flash units you can choose for your Nikon D300(S).

Selecting a Nikon Speedlight Flash Unit

Nikon makes several Speedlight units that work very well with the Nikon D300(S). I personally have used the SB-400, SB-600, SB-800, and SB-900 units with the D300(S). There are also the R1C1 flash units (SB-R200), which are designed to be used in small groups, such as for a ring-light arrangement.

Figure 12-13. SB-900 Speedlight

I really enjoy using the Nikon SB-900 Speedlight unit (see Figure 12-13). It is very powerful and easy to use in the CLS arrangement because it has external controls for setting remote mode. It can also be used as a CLS commander when needed.

Figure 12-14. SB-800 Speedlight

The SB-800 Speedlight unit is similar in power to the SB-900 and has the ability to be a CLS commander too (see Figure 12-14). The SB-800's controls are more difficult to adjust than the SB-900's controls because the settings are buried in menus. I've used these successfully for several years. They are no longer in production, but preowned models are available on various Internet sites. Unfortunately, they're desired by so many people that the used price can often exceed the cost of a new SB-900.

Figure 12-15. SB-600 Speedlight

The Nikon SB-600 Speedlight unit is the low-cost flash for users on a budget. It is only about one stop less powerful than the SB-900 or SB-800 unit and costs considerably less (see Figure 12-15). Buying several of these won't set you back much and will allow you to set up a great CLS system with your D300(S). If you are just getting started in CLS, these might be your best investment. The SB-600 does not have a built-in Commander mode itself, like the SB-800 and SB-900, but you don't need it since your D300(S) does.

Figure 12-16. SB-R200 Speedlight

Then there are the SB-R200 Speedlight units (see Figure 12-16). These are primarily designed to use in special arrangements on brackets that Nikon created for them. You'll see these Speedlights in use if you watch many crime dramas on TV because the investigators often use them for close-up flashes of crime scene evidence. They are normally used in a group arrangement, including special mounting brackets, with a Nikon SU-800 Wireless Speedlight Commander Unit. The SU-800 is shown in Figure 12-17.

Figure 12-17. SU-800 Wireless Speedlight Commander Unit

While not a Speedlight flash, I wanted to show you the Nikon SU-800 Wireless Speedlight Commander Unit (see Figure 12-17). This unit can be used when you need extra range (up to 66 feet) or need to control more than two banks of flash units—it can control three. It uses wireless infrared signals to control the flash banks. It is mounted onto the Accessory shoe of your camera, thereby precluding the use of the built-in flash.

My Conclusions

The Nikon D300(S) gives you control over the world-class Nikon Creative Lighting System. It is the envy of many other camera brand manufacturers and users. Rockynook/ Nikonians Press has an excellent book dedicated to this subject. Check Amazon.com and book stores for the title.

The book is called *The Nikon Creative Lighting System: Using the SB-600, SB-800, SB-900, and R1C1 Flashes,* by fellow Nikonian Mike Hagen.

I recommend that you buy a copy of Mike's book as an excellent way to increase your knowledge of the Nikon Creative Lighting System. My book covers CLS only in relation to the Nikon D300(S) camera body.

Mike's book goes into great detail on using Nikon cameras to control all the major flash units that Nikon currently makes.

With these two books, and some practice, you can become a Nikon Creative Lighting System expert!

rockynook
NikoniansPress
Nikon
Nikon
Nikon
Mike Hagen
The Nikon Creative Lighting System
Using the SB-600, SB-800, SB-900, and R1C1 Flashes

Figure 12-18. *The Nikon Creative Lighting System,* by Mike Hagen

I also suggest that you find a good book on lighting techniques and study it well. You'll have to learn how to control shadows and reflections. Plus, you'll have to understand something about lighting ratios so that you can recognize a good image when you see one.

Buy a couple of light stands and some cheap white flash umbrellas and set up some portrait sessions of your family, or even some product shots. With the Nikon D300(S) and even one extra Speedlight, you can create some very impressive images with much less work than ever before.

Figure 12-19. Single-flash Nikon CLS compared to direct flash

The really nice thing is that the Nikon Creative Lighting System—executed by your camera's Commander mode and external Speedlight flashes—will allow you to shoot without worrying so much about detailed exposure issues. Instead, you can concentrate on creating a great-looking image.

Thank You!

I'd like to express my personal appreciation to you for buying this book, and for sticking with me all the way to the end of it. I sincerely hope that is has been useful to you and that you'll recommend my books to your Nikon-using friends.

Keep on capturing time...

Credits for Chapter Opening Images

Chapter 1

Apples – Courtesy of **Neale Dyster** (*Digitwized*) Tamar Valley in Northern Tasmania, Australia. These are my favourite of the many varieties of apples in our next door neighbour's extensive orchard.

Chapter 2

Red-Tailed Hawk – Courtesy of **Doug Sipes** (*Dsipes*). Rocky Mountain National Arsenal (now a wildlife refuge) near Denver, CO, USA. This image is of a year old female Red-Tailed Hawk, taken just outside a lean-to that was sheltering the birds from the sun.

Chapter 3

F-22 Raptor – Courtesy of **Norman Paratore** (*carlysgranddad*). Naval Air Station Oceana air show in Virginia Beach, VA, USA. I got lucky with this shot and had blue sky as a back ground. Weather was windy and humidity high, thus the condensation accumulating on the front of the plane.

Chapter 4

Bikes Catch Air – Courtesy of **Ken Rutt** (*raxafarian*). Wild Rat Raceway near Colorado Springs, CO, USA. Motocross riders catching some air.

Chapter 5

Dawn on El Capitan – Courtesy of **Russ Glindmeier** (*russg*). Valley View, in Yosemite Valley, CA, USA. This is a High Dynamic Range (HDR) image combining three exposures, two stops apart, each with a minus one stop exposure compensation.

Chapter 6

Free Climber – Courtesy of **Octavian Radu Topai** (*Tavi*). Retezat National Park in Romania. My colleague (climbing with no rope on a granite wall) had an interesting silhouette over the defocused background, the valley behind.

Chapter 7

Maine Coon Cat – Courtesy of **Cindie Fearnall** (*Gipsi*). This photo was taken indoors on an overcast day using only window light. “Sir Galahad” was positioned next to a South facing window and in front of a black backdrop.

Chapter 8

Sol Duc Valley Stream – Courtesy of **Daniel Stainer** (*spiritualized67*). Sol Duc Valley Stream in Olympic National Park, Washington State, USA. It had just rained and the sky was starting to brighten when I captured this iconic scene. Rainforest location makes natural vibrant greens.

Chapter 9

Father and Son – Courtesy of **LaDonna France Huizinga** (*Cookies35*). My brother-in-law is sheltering the head of his second-born in his dimly-lit living room. The extra hand in the picture is his grandmother's. I didn't even realize there was one too many hands until book submission time.

Chapter 10

Hello Cutie – Courtesy of **Stephen J. Weston** (*stevezz1*). My furniture-making workshop is situated on a farm having a small pond with a few Mallard ducks. First brood for this little chap's Mom.

Chapter 11

Bald Eagle Fishing – Courtesy of **David Summers** (*dm1dave*). I captured this eagle checking his catch over the Mississippi. The D300 with its AF system and its fast frame rate allows me to capture these great birds in action.

Chapter 12

Contemplation – Courtesy of **Richerd Reynolds** (*slartybartfast*). This is a portrait of my daughter. She came over and began pretending the legs of my light stand was a mountain for her toys to climb. I captured the moment.

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Additional Downloadable Resources Website

As a final reminder, we have a downloadable resources webpage for this book. It contains several additional chapter sections that provide added information on camera operation and even a few photo technique basics.

http://rockynook.com/NikonD300S

Also, please see the Nikonians Gold membership 50 percent discount coupon on the preceeding page. Thank you!

Index

A note on the digital index ?

A link in an index entry is displayed as the section title in which that entry appears. Because some sections have multiple index markers, it is not unusual for an entry to have several links to the same section. Clicking on any link will take you directly to the place in the text in which the marker appears.

Symbols

3D color matrix II meter, Metering, Exposure Modes, and Histogram
3D tracking (51 points), Custom setting a3 (D300S and D300)
9, 21, or 51 AF points, Custom setting a3 (D300S and D300)
100D300S, Playback Folder, Copy Images (D300S Only)
100ND300, Playback Folder, Copy Images (D300S Only)
12-bit files vs. 14-bit files, NEF (RAW) Type
12.2 MP/6.9 MP/3.1 MP, Final Image Format Ramblings
1280×720, 64×424, 320×216, D-Movie Mode – Section Two
2,500–10,000K color temperature, Manually Selecting a Color Temperature between 2,500 and 10,000 K
4288×2848; 3216×2136; 2144×1424, Final Image Format Ramblings
51 point (3D-tracking), Custom setting a3 (D300S and D300)
720p HD video (D300S), D-Movie Mode – Section Two
999 images in a folder, Active Folder
9999 images in sequence, Custom setting d6 (D300S) and d5 (D300)
White Balance symbols, Method 1 – Manual White Balance Using the WB Button

A

Active D-Lighting, Color Space
Active folder, Active Folder, Active Folder, Active Folder
New folder number, Active Folder
Select folder, Active Folder

ADL bracketing (D300S), Custom setting e5 (D300S and D300), ADL Bracketing (D300S only)
Adobe RGB, Shooting Menu, Shooting Menu, Shooting Menu Bank, File Naming, File Naming, Color Space
File naming for, File Naming

AF activation (a5), Custom setting a5 (D300S and D300)
AF fine tune, Selecting a Non-CPU Lens by Using External Camera Controls
AF point illumination (a6), Custom setting a5 (D300S and D300)
AF point selection (a8), Custom setting a8 (D300S and D300)
AF-C priority selection (a1), Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300)
Focus, Custom setting a1 (D300S and D300)
Release, Custom setting a1 (D300S and D300)
Release + focus, Custom setting a1 (D300S and D300)

AF-ON for MB-D10 (a10), Custom setting aio (D300S and D300)
AF-S priority selection (a2), Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300)
Focus, Custom setting a1 (D300S and D300)
Release, Custom setting a1 (D300S and D300)

After delete, Image Review, After Delete, After Delete, After Delete
Continue as before, After Delete
Show next, After Delete
Show previous, After Delete

Aperture priority auto mode (A), S – Shutter Priority Auto Mode
Assign AE-L/AF-L button (f6–D300), Custom setting f4 (D300S) and f3 (D300)
Assign AE-L/AF-L button (f7–D300S), Custom setting f4 (D300S) and f3 (D300)
Assign Fn button (f5), Custom setting f4 (D300S) and f3 (D300)
Assign FUNC. button (f4), Custom setting f4 (D300S) and f3 (D300)
Assign preview button (f5–D300), Custom setting f4 (D300S) and f3 (D300)
Assign preview button (f6–D300S), Custom setting f4 (D300S) and f3 (D300)
Authentication (Image), Image Authentication
Auto, Rotate Tall, Setting the ISO Sensitivity Settings, Multiple Exposure, Custom setting c1 (D300S and D300), Custom setting d8 (D300S) and d7 (D300), Custom setting d8 (D300S) and d7 (D300), Custom setting e1 (D300S and D300), Custom setting e5 (D300S and D300), Custom setting e6 (D300S and D300), HDMI

Bracketing, Custom setting e5 (D300S and D300)
Bracketing (Mode M), Custom setting e6 (D300S and D300)
FP, Custom setting e1 (D300S and D300)
Gain (multiple exposure), Multiple Exposure
Image rotation, Rotate Tall, HDMI
Information display color, Custom setting d8 (D300S) and d7 (D300)
ISO sensitivity, Setting the ISO Sensitivity Settings
Meter-off delay (c2), Custom setting c1 (D300S and D300)
Shooting info display color, Custom setting d8 (D300S) and d7 (D300)

Auto bracketing (Mode M), Custom setting e6 (D300S and D300)
Auto FP high-speed sync, Section Five – (e) Bracketing/ Flash: Custom Settings e1 to e7
Auto image rotation, Rotate Tall, HDMI
Auto meter-off delay (c2), Custom setting c1 (D300S and D300)
Auto-area AF, Dynamic-area AF
Autofocus, Naming Variances between the D300S and D300, Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300), Using Custom settings a1 and a2, Custom setting a4 (D300S and D300), Custom setting a5 (D300S and D300), Custom setting a5 (D300S and D300), Custom setting a6 (D300S and D300), Custom setting a8 (D300S and D300), Custom setting a8 (D300S and D300), Custom setting aio (D300S and D300), D-Movie Mode – Section Two, Multi-CAM 3500DX Autofocus, Single-servo AF Mode (S), Single-servo AF

Mode (S), Continuous-servo AF Mode (C), Continuous-servo AF Mode (C), Dynamic-area AF
AF activation, Custom setting a5 (D300S and D300)
AF point illumination, Custom setting a5 (D300S and D300)
AF point selection, Custom setting a8 (D300S and D300)
AF-C priority selection, Custom setting a1 (D300S and D300)
AF-ON for MB-D10, Custom setting aio (D300S and D300)
AF-S priority selection, Custom setting a1 (D300S and D300)
Auto-area AF, Dynamic-area AF
Built-in AF-assist illuminator, Custom setting a8 (D300S and D300)
Continuous-servo AF (C), Single-servo AF Mode (S)
Dynamic AF area, Using Custom settings a1 and a2
Dynamic-area AF, D-Movie Mode – Section Two
Focus point wrap-around, Custom setting a6 (D300S and D300)
Focus tracking with lock-on, Custom setting a4 (D300S and D300)
Predictive focus tracking, Continuous-servo AF Mode (C)
Single-point AF, Continuous-servo AF Mode (C)
Single-servo AF (S), Single-servo AF Mode (S)

Averaging meter, Center-Weighted Meter

B

Backlight switch (f1–D300S), Section Six – (f) Controls: Custom Settings f1 to f11
Battery info, Finding a Subject for the Dust-Off Reference Photo
Battery order (d12–D300S, d11–D300), Custom setting d11 (D300S) and d10 (D300)
Beep (d1), Custom setting d1 (D300S and D300)
Bit depth tutorial, NEF (RAW) Bit Depth
Body reference (Camera), Fig 1 (1–11)
Bracketing, Custom setting b2 (D300S and D300), Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7, Custom setting e5 (D300S and D300), Custom setting e5 (D300S and D300), Custom setting e5 (D300S and D300), Custom setting e5 (D300S and D300), Custom setting e5 (D300S and D300), Exposure Bracketing (AE and Flash Combination), Custom setting e6 (D300S and D300), Custom setting e7 (D300S and D300), Custom setting e7 (D300S and D300)
- **ADL (Active D-Lighting), Custom setting e5 (D300S and D300)**
- **AE & flash, Custom setting e5 (D300S and D300)**
- **AE only, Custom setting e5 (D300S and D300)**
- **Auto bracketing, Custom setting e5 (D300S and D300)**
- **MTR > under > over, Custom setting e7 (D300S and D300)**
- **Order (e7), Custom setting e6 (D300S and D300)**
- **Under > MTR > over, Custom setting e7 (D300S and D300)**
- **WB (White Balance), Custom setting e5 (D300S and D300), Exposure Bracketing (AE and Flash Combination)**

Bracketing order (e7), Custom setting e6 (D300S and D300)
Bracketing/Flash, Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7, Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7, Special Shutter Speed Setting X + Flash Sync Speed, Custom setting e3 (D300S and D300), Commander Mode Notes, Custom setting e5 (D300S and D300), Custom setting e6 (D300S and D300), Custom setting e6 (D300S and D300)
Auto bracketing (Mode M), Custom setting e6 (D300S and D300)
Auto bracketing set, Custom setting e5 (D300S and D300)
Bracketing order, Custom setting e6 (D300S and D300)
Flash cntrl for built-in flash, Custom setting e3 (D300S and D300)
Flash shutter speed, Special Shutter Speed Setting X + Flash Sync Speed
Flash sync speed, Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7
Modeling flash, Commander Mode Notes

Built-in AF-assist illuminator (a9), Custom setting a8 (D300S and D300)

C

Camera body reference, Fig 1 (1–11)
Camera configuration (Shoot Now), First-Time DSLR Users, Setup Menu
Camera menus (Accessing), First-Time DSLR Users
Camera monitor information, Playback Menu
Camera setting recommendations, Setup Menu
Card capacity reporting, NEF (RAW) Type
Center-weighted area (b5), Custom setting b5 (D300S and D300)
Center-weighted meter, Fine-Tuning Matrix Metering
Channel and bit depth, NEF (RAW) Bit Depth
Choose slot and folder, Choose slot and folder (D300S)
CL mode shooting speed (d5–D300S, d4–D300), Custom setting d4 (D300S Only)
Clean image sensor, Clean Image Sensor, Clean Image Sensor, Clean Image Sensor, Lock Mirror Up For Cleaning
    Clean at startup/shutdown, Clean Image Sensor
    Clean now, Clean Image Sensor
    Lock mirror up for cleaning, Lock Mirror Up For Cleaning

Color balance (Retouch), Filter Effects
Color space, File Naming, Color Space, Color Space, Color Space, Color Space
    D300S Info. Display edit screen, Color Space
    Selecting, Color Space
    Which one to use, Color Space

Color temperature, White Balance
Colors and Wording Legend, Colors and Wording Legend
Combined image shooting, TIFF Negatives

Commander mode, How Does the D300(S) Fit into the CLS Scheme?, Commander Mode Settings, Commander Mode Settings, Commander Mode Settings, Commander Mode Settings
-- mode, Commander Mode Settings
AA mode, Commander Mode Settings
M mode, Commander Mode Settings
TTL mode, Commander Mode Settings

Compact flash capacity reporting, NEF (RAW) Type
Compressed NEF, NEF (RAW) Type
Continuous-servo AF (C), Single-servo AF Mode (S)
Controls, Section Six – (f) Controls: Custom Settings f1 to f11, Section Six – (f) Controls: Custom Settings f1 to f11, Custom setting f1 (D300S only), Choose folder (D300), Custom setting f3 (D300S) and f2 (D300), Custom setting f4 (D300S) and f3 (D300), Custom setting f4 (D300S) and f3 (D300), Custom setting f4 (D300S) and f3 (D300), Assignable Function List, Menus and playback, Custom setting f9 (D300S) and f8 (D300), Custom setting f11 (D300S) and f10 (D300)

Assign AE-L/AF-L button, Custom setting f4 (D300S) and f3 (D300)
Assign Fn (FUNC.)button, Custom setting f4 (D300S) and f3 (D300)
Assign preview button, Custom setting f4 (D300S) and f3 (D300)
Backlight switch, Section Six – (f) Controls: Custom Settings f1 to f11
Customize command dials, Assignable Function List
Multi selector, Choose folder (D300)
Multi selector center button, Custom setting f1 (D300S only)
No memory card?, Custom setting f9 (D300S) and f8 (D300)
Photo info/playback, Custom setting f3 (D300S) and f2 (D300)
Release button to use dial, Menus and playback
Reverse indicators, Custom setting f11 (D300S) and f10 (D300)

Copy images (D300S only), Display Mode, Display Mode, Copy Images (D300S Only), Copy Images (D300S Only), Copy Images (D300S Only), Copy Images (D300S Only), Copy Images (D300S Only), Copy Images (D300S Only), Copy Images (D300S Only)
Deselect all, Copy Images (D300S Only)
Select all images, Copy Images (D300S Only)
Select destination folder, Copy Images (D300S Only)
Select folder by number, Copy Images (D300S Only)
Select folder from list, Copy Images (D300S Only)
Select protected images, Copy Images (D300S Only)
Selecting a source card, Display Mode

Copyright information (D300S), Image Authentication
Credits for chapter opening images, Chapter 1
Custom setting bank, Custom Setting Menu, Custom Setting Menu, Renaming a Custom Setting Bank
D300S Info. display edit screen, Renaming a Custom Setting Bank
Renaming, Custom Setting Menu

Custom Setting Menu, Custom Setting Menu, Custom Setting Menu, Reset Custom Settings, Naming Variances between the D300S and D300, Custom setting aio (D300S and D300), Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4, D300 Only – Monitor Off Delay, Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7, Section Six – (f) Controls: Custom Settings f1 to f11
(a) Autofocus, Naming Variances between the D300S and D300
(b) Metering/Exposure, Custom setting aio (D300S and D300)
(c) Timers/AE Lock, Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4
(d) Shooting/Display, D300 Only – Monitor Off Delay
(e) Bracketing/Flash, Section Five – (e) Bracketing/ Flash: Custom Settings e1 to e7
(f) Controls, Section Six – (f) Controls: Custom Settings f1 to f11
Custom setting bank, Custom Setting Menu
Reset custom settings, Reset Custom Settings

Custom Settings (individual), Custom setting a1 (D300S and D300), Custom setting a1 (D300S and D300), Using Custom settings a1 and a2, Custom setting a4 (D300S and D300), Custom setting a5 (D300S and D300), Custom

setting a5 (D300S and D300), Custom setting a6 (D300S and D300), Custom setting a8 (D300S and D300), Custom setting a8 (D300S and D300), Custom setting aio (D300S and D300), Section Two – (b) Metering/Exposure: Custom Settings b1 to b6, Custom setting b1 (D300S and D300), Custom setting b3 (D300S and D300), Custom setting b3 (D300S and D300), Custom setting b5 (D300S and D300), Custom setting b6 (D300S and D300), Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4, Custom setting c1 (D300S and D300), Custom setting C2 (D300S and D300), Custom setting C4 (D300S and D300), Custom setting d1 (D300S and D300), Custom setting d1 (D300S and D300), Custom setting d2 (D300S and D300), Custom setting d3 (D300S and D300), Custom setting d4 (D300S Only), Custom setting d4 (D300S Only), Custom setting d6 (D300S) and d5 (D300), Custom setting d6 (D300S) and d5 (D300), Custom setting d6 (D300S) and d5 (D300), Custom setting d6 (D300S) and d5 (D300), Custom setting d7 (D300S) and d6 (D300), Custom setting d7 (D300S) and d6 (D300), Custom setting d9 (D300S) and d8 (D300), Custom setting d9 (D300S) and d8 (D300), Custom setting d10 (D300S) and d9 (D300), Custom setting d10 (D300S) and d9 (D300), Custom setting d10 (D300S) and d9 (D300), Custom setting d10 (D300S) and d9 (D300), Custom setting d11 (D300S) and d10 (D300), Custom setting d11 (D300S) and d10 (D300), Section Five – (e) Bracketing/ Flash: Custom Settings e1 to e7, Special Shutter Speed Setting X + Flash Sync Speed, Custom setting e3 (D300S and D300), Commander Mode Notes, Custom setting e5 (D300S and D300), Custom setting e6 (D300S and D300), Custom setting e6 (D300S and D300), Section Six – (f) Controls: Custom Settings f1 to f11, Custom setting f1 (D300S only), Custom setting f1 (D300S only), Choose

folder (D300), **Choose folder (D300)**, **Custom setting f3 (D300S) and f2 (D300)**, **Custom setting f3 (D300S) and f2 (D300)**, **Custom setting f4 (D300S) and f3 (D300)**, **Custom setting f4 (D300S) and f3 (D300)**, **Custom setting f4 (D300S) and f3 (D300)**, **Custom setting f4 (D300S) and f3 (D300)**, **Custom setting f4 (D300S) and f3 (D300)**, **Custom setting f4 (D300S) and f3 (D300)**, **Assignable Function List**, **Assignable Function List**, **Menus and playback**, **Menus and playback**, **Custom setting f9 (D300S) and f8 (D300)**, **Custom setting f9 (D300S) and f8 (D300)**, **Custom setting f11 (D300S) and f10 (D300)**, **Custom setting f11 (D300S) and f10 (D300)**

a1, Custom setting a1 (D300S and D300)
a10, Custom setting aio (D300S and D300)
a2, Custom setting a1 (D300S and D300)
a3, Using Custom settings a1 and a2
a4, Custom setting a4 (D300S and D300)
a5, Custom setting a5 (D300S and D300)
a6, Custom setting a5 (D300S and D300)
a7, Custom setting a6 (D300S and D300)
a8, Custom setting a8 (D300S and D300)
a9, Custom setting a8 (D300S and D300)
b1, Section Two – (b) Metering/Exposure: Custom Settings b1 to b6
b2, Custom setting b1 (D300S and D300)
b3, Custom setting b3 (D300S and D300)
b4, Custom setting b3 (D300S and D300)
b5, Custom setting b5 (D300S and D300)
b6, Custom setting b6 (D300S and D300)
c1, Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4
c2, Custom setting c1 (D300S and D300)
c3, Custom setting C2 (D300S and D300)
c4, Custom setting C4 (D300S and D300)
d1, Custom setting d1 (D300S and D300)
d10 (D300), Custom setting d10 (D300S) and d9 (D300)
d10 (D300S), Custom setting d10 (D300S) and d9 (D300)
d11 (D300), Custom setting d11 (D300S) and d10 (D300)
d11 (D300S), Custom setting d10 (D300S) and d9 (D300)
d12 (D300S), Custom setting d11 (D300S) and d10 (D300)
d2, Custom setting d1 (D300S and D300)

d3, Custom setting d2 (D300S and D300)
d4 (D300), Custom setting d4 (D300S Only)
d4 (D300S), Custom setting d3 (D300S and D300)
d5 (D300), Custom setting d6 (D300S) and d5 (D300)
d5 (D300S), Custom setting d4 (D300S Only)
d6 (D300), Custom setting d6 (D300S) and d5 (D300)
d6 (D300S), Custom setting d6 (D300S) and d5 (D300)
d7 (D300), Custom setting d7 (D300S) and d6 (D300)
d7 (D300S), Custom setting d6 (D300S) and d5 (D300)
d8 (D300), Custom setting d9 (D300S) and d8 (D300)
d8 (D300S), Custom setting d7 (D300S) and d6 (D300)
d9 (D300), Custom setting d10 (D300S) and d9 (D300)
d9 (D300S), Custom setting d9 (D300S) and d8 (D300)
e1, Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7
e2, Special Shutter Speed Setting X + Flash Sync Speed
e3, Custom setting e3 (D300S and D300)
e4, Commander Mode Notes
e5, Custom setting e5 (D300S and D300)
e6, Custom setting e6 (D300S and D300)
e7, Custom setting e6 (D300S and D300)
f1 (D300), Custom setting f1 (D300S only)
f1 (D300S), Section Six – (f) Controls: Custom Settings f1 to f11
f10 (D300), Custom setting f11 (D300S) and f10 (D300)
f10 (D300S), Custom setting f9 (D300S) and f8 (D300)
f11 (D300S), Custom setting f11 (D300S) and f10 (D300)
f2 (D300), Choose folder (D300)
f2 (D300S), Custom setting f1 (D300S only)
f3 (D300), Custom setting f3 (D300S) and f2 (D300)
f3 (D300S), Choose folder (D300)

f4 (D300), Custom setting f4 (D300S) and f3 (D300)
f4 (D300S), Custom setting f3 (D300S) and f2 (D300)
f5 (D300), Custom setting f4 (D300S) and f3 (D300)
f5 (D300S), Custom setting f4 (D300S) and f3 (D300)
f6 (D300), Custom setting f4 (D300S) and f3 (D300)
f6 (D300S), Custom setting f4 (D300S) and f3 (D300)
f7 (D300), Assignable Function List
f7 (D300S), Custom setting f4 (D300S) and f3 (D300)
f8 (D300), Menus and playback
f8 (D300S), Assignable Function List
f9 (D300), Custom setting f9 (D300S) and f8 (D300)
f9 (D300S), Menus and playback

Customize command dials (f8–D300S, f7–D300), Assignable Function List

D

D-Lighting (Retouch), Playback Retouching
D-Movie editing software, Video Editing Software
D-Movie mode, D-Movie Mode – Section Two, Displaying a D-Movie on a High Definition TV (HDTV), Displaying a D-Movie on a High Definition TV (HDTV), How the Rolling Shutter Works in D-Movie Mode
- **Avoiding "jellywobble", How the Rolling Shutter Works in D-Movie Mode**
- **Limitations, Displaying a D-Movie on a High Definition TV (HDTV)**
- **Rolling shutter, Displaying a D-Movie on a High Definition TV (HDTV)**

D-Movie mode (D300S), D-Movie Mode – Section Two
Data screens (Image), Display Mode
Delete function, Playback Menu, Delete, Delete
- **All images, Delete**
- **Selected images, Delete**

Deselect all, Copy Images (D300S Only)
Display mode, Hide Image, Display Mode, Display Mode, Display Mode, Display Mode, Display Mode
- **Basic photo info vs. Detailed photo info, Display Mode**
- **Data, Display Mode**
- **Focus point, Display Mode**
- **Highlights, Display Mode**
- **RGB Histogram, Display Mode**

Displaying D-Movies (D300S), Displaying D-Movies, Displaying D-Movies, Displaying D-Movies, Displaying a D-Movie on a Standard Definition TV (SDTV)

On an HDTV (High-definition), Displaying a D-Movie on a Standard Definition TV (SDTV)
On an SDTV (Standard definition), Displaying D-Movies
On the LCD screen (Monitor), Displaying D-Movies

Downloadable resources, D300S and D300 Reference Material
Dust off ref photo, USB (D300 only)
Dynamic AF area (a3), Using Custom settings a1 and a2, Custom setting a3 (D300S and D300), Custom setting a3 (D300S and D300)
9, 21, 51 points, 51 point 3D, Custom setting a3 (D300S and D300)
Viewfinder screens, Custom setting a3 (D300S and D300)

E

Easy exposure compensation (b4), Custom setting b3 (D300S and D300)
Edit movie (Retouch, D300S), Resize (D300S only)
EV steps for Exposure Cntrl. (b2), Custom setting b1 (D300S and D300)
Exp comp/fine tune (b3), Custom setting b3 (D300S and D300)
Exposure delay mode (d10–D300S, d9–D300), Custom setting d10 (D300S) and d9 (D300)
Exposure modes, Spot Meter, P – Programmed Auto Mode, Get Down Grandpa!, S – Shutter Priority Auto Mode, M – Manual Mode
- **Aperture priority mode, S – Shutter Priority Auto Mode**
- **Manual mode, M – Manual Mode**
- **Programmed auto mode, P – Programmed Auto Mode**
- **Shutter priority mode, Get Down Grandpa!**

Eye-Fi upload (D300S), AF Fine Tune

F

File naming, Active Folder, File Naming, File Number Sequence used with File Naming
First three characters, File Number Sequence used with File Naming
Number sequence, File Naming

File number sequence (d7–D300S, d6–D300), File Naming, Custom setting d6 (D300S) and d5 (D300)
File naming, File Naming

Filter effects (Retouch), Monochrome
Fine tune optimal exposure (b6), Custom setting b6 (D300S and D300)
Fine-tuning matrix metering, 3D Color Matrix II Meter
Firmware version, Eye-Fi Upload (D300S only)
First–Time DSLR Users, D300S and D300 Reference Material
Flash cntrl for built-in flash (e3), Custom setting e3 (D300S and D300)
Flash light, selecting, Setting the Channel (CH) for Communication
Flash modes, What Is a Guide Number?, What Is a Guide Number?, What Is a Guide Number?, What Is a Guide Number?, What Is a Guide Number?, Front-Curtain Sync, Slow Sync, Slow Sync
Front-curtain sync, Front-Curtain Sync
i-TTL balanced fill flash, What Is a Guide Number?
Rear-curtain sync, Slow Sync
Red-eye reduction, What Is a Guide Number?
Red-eye reduction with slow sync, What Is a Guide Number?
Slow sync, Slow Sync
Standard i-TTL, What Is a Guide Number?

Flash shutter speed (e2), Special Shutter Speed Setting X + Flash Sync Speed
Flash sync speed (e1), Section Five – (e) Bracketing/Flash: Custom Settings e1 to e7
Focus point, Display Mode
Focus point wrap-around (a7), Custom setting a6 (D300S and D300)
Focus tracking with lock-on (a4), Custom setting a4 (D300S and D300)
Folder number (new), Active Folder
Folder selection, Active Folder
Foreword, Foreword
Format memory card(s), Setup Menu
Front-curtain sync, Custom setting e2 (D300S and D300)

G

GPS, Display Mode, Save/Load Settings
Grid, MC Picture Control Filter Effects and Toning, Custom setting d1 (D300S and D300)
Picture Control, MC Picture Control Filter Effects and Toning
Viewfinder, Custom setting d1 (D300S and D300)

Guide number, Speedlight Flash Photography

H

HD vs. SD video (D300S), Which Video Encoding Method?
HDMI, Video Mode
Hide image, Playback Folder, Hide Image, Hide Image
Deselect all, Hide Image
Select/Set, Hide Image

High ISO NR, High ISO NR, High ISO NR, High ISO NR
Four levels, High ISO NR
Sample image, High ISO NR

Highlights, Display Mode
Histogram, Display Mode, Channel and Bit Depth Tutorial, Histogram

I

Image authentication, Image Authentication
Image comment, Language
Image compression, Combined NEF and JPEG Shooting (Two Images at Once)
Image data, Display Mode
Image deletion, Playback Menu
Image dust off ref photo, USB (D300 only)
Image overlay (Retouch), Color Balance
Image quality, Secondary Slot Function (D300S Only), Image Quality, Image Quality, NEF (RAW) Image Quality Format, RAW Files Aren't Images Yet!, NEF (RAW) Negatives, NEF (RAW) Negatives, JPEG Positives, JPEG Positives, TIFF Negatives, Combined

NEF and JPEG Shooting (Two Images at Once), Image Size
JPEG, NEF (RAW) Negatives, NEF (RAW) Negatives
Fine, normal, and basic, NEF (RAW) Negatives

JPEG compression, Image Size
NEF (RAW), Image Quality, RAW Files Aren't Images Yet!
Positives vs. Negatives, RAW Files Aren't Images Yet!

NEF (RAW) + JPEG (fine, normal, basic), TIFF Negatives
RAW files aren't images yet, NEF (RAW) Image Quality Format
TIFF, JPEG Positives, JPEG Positives
Positives vs. Negatives, JPEG Positives

Types, Image Quality
Which image format is best?, Combined NEF and JPEG Shooting (Two Images at Once)

Image review, Copy Images (D300S Only), Image Review
On or Off, Image Review

Image rotation, auto, Rotate Tall
Image size, Final Image Format Ramblings, Final Image Format Ramblings
Large (L), Medium (M), Small (S), Final Image Format Ramblings

Information display (d8-D300S), Custom setting d7 (D300S) and d6 (D300)
Initial camera configuration, Setup Menu

Interval timer shooting, Movie Settings (D300S Only), Interval Timer Shooting, Interval Timer Shooting, Interval Timer Shooting
Interval, Interval Timer Shooting
Select intvls x no. of shots, Interval Timer Shooting
Start time, Interval Timer Shooting

ISO Auto, Setting the ISO Sensitivity Settings
ISO sensitivity auto control, Setting the ISO Sensitivity Settings
ISO sensitivity settings, High ISO NR, High ISO NR, ISO Sensitivity Settings, Setting the ISO Sensitivity Settings, Setting the ISO Sensitivity Settings, Maximum Sensitivity, Minimum Shutter Speed, ISO Sensitivity Auto Control from the Camera's Perspective, When and why should I use ISO sensitivity auto control?
Auto control, Setting the ISO Sensitivity Settings
Camera's perspective, Minimum Shutter Speed
Drawbacks, When and why should I use ISO sensitivity auto control?
High ISO NR, High ISO NR
Maximum sensitivity, Setting the ISO Sensitivity Settings
Minimum shutter speed, Maximum Sensitivity
Setting the ISO, ISO Sensitivity Settings
When to use, ISO Sensitivity Auto Control from the Camera's Perspective

ISO sensitivity step value (b1), Section Two – (b) Metering/Exposure: Custom Settings b1 to b6
ISO, High NR, High ISO NR

J

JPEG compression, Image Size, JPEG Compression
Size priority vs. Optimal quality, JPEG Compression

JPEG image quality, NEF (RAW) Negatives, NEF (RAW) Negatives, JPEG Image Quality Format, TIFF Negatives
Combined with NEF (RAW), TIFF Negatives
Fine, normal, and basic, NEF (RAW) Negatives
Positives vs. Negatives, JPEG Image Quality Format

K

Kelvin color temperature, White Balance

L

Landscape (LS) Picture Control, Examining Picture Controls
Language, Time Zone and Date or World Time
Large (L) image size, Final Image Format Ramblings
LCD brightness, LCD Brightness
LCD illumination (d9–D300S, d8–D300), Custom setting d9 (D300S) and d8 (D300)
LCD monitor information, Playback Menu
Live view mode, Are there any drawbacks to using ISO sensitivity auto control?, Live View Mode, Live View and D-Movie Modes, Live View Mode – Section One, Live View's Two Modes, Live View's Two Modes, Autofocus in Live View Mode, Selecting a Release Mode Frame Rate, Selecting a Release Mode Frame Rate
- **Autofocus, Autofocus in Live View Mode**
- **Hand-held, Live View Mode – Section One, Selecting a Release Mode Frame Rate**
- **Screens, Live View Mode, Live View's Two Modes**
- **Tripod, Live View's Two Modes, Selecting a Release Mode Frame Rate**

Lock mirror up for cleaning, Lock Mirror Up For Cleaning
Lock-on (a4–Focus tracking), Custom setting a4 (D300S and D300)
Long Exp. NR, Active D-Lighting, Long Exp. NR, Long Exp. NR
- **D300S Info. Display edit screen, Long Exp. NR**
- **Sample image, Long Exp. NR**

Lossless compressed NEF, NEF (RAW) Type

M

Manage picture control, Resetting a Nikon Picture Control
Manual focus, What Is the Multi-CAM 3500DX Autofocus Module?
Manual mode (M), M – Manual Mode
Manual white balance, Method 1 – Manual White Balance Using the WB Button
Matrix metering, Metering, Exposure Modes, and Histogram
Max. continuous release (d6–D300S, d5–D300), Custom setting d6 (D300S) and d5 (D300)
MB-D10 battery type (d11–D300S, d10–D300), Custom setting d10 (D300S) and d9 (D300)
Medium (M) image size, Final Image Format Ramblings
Memory card formatting, Setup Menu
Menu overview, Accessing the Camera Menus
Metering Systems, Metering, Exposure Modes, and Histogram, Metering, Exposure Modes, and Histogram, Metering, Exposure Modes, and Histogram, 3D Color Matrix II Meter, Fine-Tuning Matrix Metering, Fine-Tuning Matrix Metering, Center-Weighted Meter
- **3D color matrix II meter, Metering, Exposure Modes, and Histogram**
- **Center-weighted meter, Fine-Tuning Matrix Metering**
- **Fine-tuning matrix, 3D Color Matrix II Meter**
- **Matrix metering, Metering, Exposure Modes, and Histogram**
- **Spot meter, Center-Weighted Meter**
- **Using flash with, Fine-Tuning Matrix Metering**

Metering/Exposure, Custom setting aio (D300S and D300), Section Two – (b) Metering/Exposure: Custom Settings b1 to b6, Custom setting b1 (D300S and D300),

Custom setting b3 (D300S and D300), Custom setting b3 (D300S and D300), Custom setting b5 (D300S and D300), Custom setting b6 (D300S and D300)
Center-weighted area, Custom setting b5 (D300S and D300)
Easy exposure compensation, Custom setting b3 (D300S and D300)
EV steps for exposure cntrl., Custom setting b1 (D300S and D300)
Exp comp/fine tune, Custom setting b3 (D300S and D300)
Fine tune optimal exposure, Custom setting b6 (D300S and D300)
ISO sensitivity step value, Section Two – (b) Metering/ Exposure: Custom Settings b1 to b6

Microphone, Understanding Auto Gain
Mired, WB Bracketing
Modeling flash (e4), Commander Mode Notes
Monitor information, Playback Menu
Monitor off delay (c4), Custom setting C4 (D300S and D300)
Monochrome (MC) Picture Control, Examining Picture Controls
Monochrome (Retouch), Trim
Movie editing software, Video Editing Software
Movie mode (D300S), D-Movie Mode – Section Two
Movie settings (D300S), Understanding Auto Gain, Understanding Auto Gain, Understanding Auto Gain, Understanding Auto Gain, Movie Settings (D300S Only)

Destination, Understanding Auto Gain
Mic sensitivity, Movie Settings (D300S Only)
Microphone, Understanding Auto Gain
Quality, Understanding Auto Gain

Multi Selector (f3–D300S, f2–D300), Choose slot and folder (D300S), Choose folder (D300), Custom setting f3 (D300S) and f2 (D300)
Do nothing, Custom setting f3 (D300S) and f2 (D300)
Reset meter-off delay, Choose slot and folder (D300S)

Multi selector center button (f2–D300S, f1–D300), Custom setting f1 (D300S only), Custom setting f2 (D300S) and f1 (D300), Playback Mode, Playback Mode, Playback Mode, View histograms, Choose slot and folder (D300S), Choose slot and folder (D300S)
Choose folder (D300), Choose slot and folder (D300S)
Choose slot and folder (D300S), Choose slot and folder (D300S)
Playback mode, Playback Mode
Shooting mode, Custom setting f2 (D300S) and f1 (D300)
Thumbnail on/off, Playback Mode
View histograms, Playback Mode
Zoom on/off, View histograms

Multi-CAM 3500DX AF Module, Multi-CAM 3500DX Autofocus, What Is the Multi-CAM 3500DX Autofocus Module?, Single-servo AF Mode (S), Single-servo AF Mode (S), Continuous-servo AF Mode (C), Single-Point AF Example of Use, Dynamic-area AF, Dynamic-area AF, Quiet (Q) Mode (D300S only), Self-Timer Mode

AF-Area modes, Continuous-servo AF Mode (C)
Auto-area AF, Dynamic-area AF
Continuous-servo AF mode, Single-servo AF Mode (S)
Dynamic-area AF, Single-Point AF Example of Use
Focus modes, What Is the Multi-CAM 3500DX Autofocus Module?
Mirror up mode, Self-Timer Mode
Release modes, Dynamic-area AF
Self-timer mode, Quiet (Q) Mode (D300S only)
Single-servo AF mode, Single-servo AF Mode (S)

Multiple exposure, Live View Mode, Multiple Exposure
Auto gain, Multiple Exposure

My Menu, My Menu and Recent Settings, My Menu, Remove Items, Remove Items, Rank Items, Choose Tab
Add items, My Menu
Choose tab, Rank Items
Rank items, Remove Items
Recent settings, Choose Tab
Remove items, Remove Items

N

NEF (RAW), Image Quality, RAW Files Aren't Images Yet!
    Positives vs. Negatives, RAW Files Aren't Images Yet!

NEF (RAW) + JPEG (fine, normal, basic), TIFF Negatives
NEF (RAW) processing (D300S), Image Overlay
NEF (RAW) recording, JPEG Compression, NEF (RAW) Type, NEF (RAW) Type, NEF (RAW) Type
    Compressed, NEF (RAW) Type
    Lossless compressed, NEF (RAW) Type
    Uncompressed, NEF (RAW) Type

NEF bit depth, NEF (RAW) Type
NEF image quality, Image Quality
NEF type, JPEG Compression
Neutral (NL) Picture Control, Examining Picture Controls
New folder number, Active Folder
Nikon creative lighting system, Nikon Creative Lighting System (CLS)
No memory card? (f10–D300S, f9–D300), Custom setting f9 (D300S) and f8 (D300)
Non-CPU lens data, Preparing the Camera for GPS Usage
NTSC vs. PAL, Lock Mirror Up For Cleaning

O

Optimal quality vs. Size priority (JPEG), JPEG Compression

P

PAL vs. NTSC, Lock Mirror Up For Cleaning
Photo info/playback (f4–D300S, f3–D300), Custom setting f3 (D300S) and f2 (D300)
PictBridge printing, Print Set (DPOF)
Picture Controls, Set Picture Control, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, MC Picture Control Filter Effects and Toning, Picture Control Grid Screen, Resetting a Nikon Picture Control, Save/Edit a Custom Picture Control, Save/Edit a Custom Picture Control, Rename a Custom Picture Control, Delete a Custom Picture Control, Delete a Custom Picture Control, Copy to Camera, Copy to Camera, Copy to Camera, Copy to Card

Control types, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls, Examining Picture Controls
LS, or Landscape, Examining Picture Controls
MC, or Monochrome, Examining Picture Controls
NL, or Neutral, Examining Picture Controls
PT, or Portrait, Examining Picture Controls
SD, or Standard, Examining Picture Controls
VI, or Vivid, Examining Picture Controls

Copy to camera, Delete a Custom Picture Control
Copy to card, Copy to Card
Delete, Rename a Custom Picture Control
Delete from card, Copy to Camera
Downloading Optional, Copy to Camera
Filter effects, Examining Picture Controls
Grid, MC Picture Control Filter Effects and Toning
Load/Save, Delete a Custom Picture Control
Managing, Resetting a Nikon Picture Control
Optional Picture Controls, Copy to Camera
Rename, Save/Edit a Custom Picture Control
Resetting a Picture Control, Picture Control Grid Screen
Save/Edit, Save/Edit a Custom Picture Control
Toning, Examining Picture Controls

Picture deletion, Playback Menu
Playback folder, Delete, Playback Folder, Playback Folder, Playback Folder, Playback Folder, Hide Image

All, Playback Folder
Current, Playback Folder
D300S, Playback Folder
Hide images, Hide Image
ND300, Playback Folder

Playback Menu, Playback Menu, Playback Menu, Delete, Playback Folder, Hide Image, Display Mode, Copy Images (D300S Only), Copy Images (D300S Only), Image Review, Rotate Tall, Rotate Tall, Print Set (DPOF)
After delete, Image Review
Copy images (D300S only), Display Mode, Copy Images (D300S Only)
Delete function, Playback Menu
Display mode, Hide Image
Hide image, Playback Folder
Image review, Copy Images (D300S Only)
Playback folder, Delete
Print Set (DPOF), Print Set (DPOF)
Rotate tall, Rotate Tall
Slide show, Rotate Tall

Playback mode, Playback Mode
Playback retouching, Playback Retouching
Portrait (PT) Picture Control, Examining Picture Controls
PRE (PrE) white balance measurement, Manually Selecting a Color Temperature between 2,500 and 10,000 K
Predictive focus tracking, Continuous-servo AF Mode (C)
Primary slot selection (D300S only), File Number Sequence used with File Naming
Print Set (DPOF), Print Set (DPOF)

Programmed auto mode (P), P – Programmed Auto Mode
Progressive vs. Interlaced video (D300S), Progressive vs. Interlaced

Q

Q–Quiet mode (D300S), Release Modes in Detail

R

Rear-curtain sync, Custom setting e2 (D300S and D300)
Recent Settings Menu (D300S), Choose Tab
Recording video with your D300S, Recording a Video with Your D300S
Red-eye correction (Retouch), D-Lighting
Red-eye reduction, Custom setting e2 (D300S and D300)
Red-eye reduction with slow sync, Custom setting e2 (D300S and D300)
Release button to use dial (f9–D300S, f8–D300), Menus and playback
Rename, Shooting Menu, Custom Setting Menu
    Custom setting bank, Custom Setting Menu
    Shooting menu bank, Shooting Menu

Reset, Shooting Menu Bank, Picture Control Grid Screen, Reset Custom Settings
    Custom Settings, Reset Custom Settings
    Picture Control, Picture Control Grid Screen
    Shooting Menu, Shooting Menu Bank

Resize (Retouch), NEF (RAW) Processing (D300S only)
Retouch menu, Retouch Menu, Playback Retouching, Playback Retouching, D-Lighting, Red-Eye Correction,

Trim, Monochrome, Filter Effects, Color Balance, Image Overlay, NEF (RAW) Processing (D300S only), Resize (D300S only), Edit Movie (D300S only)
Color balance, Filter Effects
D-Lighting, Playback Retouching
Edit movie, Resize (D300S only)
Filter effects, Monochrome
Image overlay, Color Balance
Monochrome, Trim
NEF (RAW) processing, Image Overlay
Playback retouching, Playback Retouching
Red-eye correction, D-Lighting
Resize (D300S only), NEF (RAW) Processing (D300S only)
Side-by-side comparison, Edit Movie (D300S only)
Trim, Red-Eye Correction

Reverse indicators (f11–D300S, f10–D300), Custom setting f11 (D300S) and f10 (D300)
RGB histogram, Display Mode
Rolling shutter (D-Movie), Displaying a D-Movie on a High Definition TV (HDTV)
Rotate tall, Rotate Tall, Rotate Tall
On or Off, Rotate Tall

S

Save/Load settings, Copyright Information (D300S Only)
Screen tips (d4), Custom setting d3 (D300S and D300)
SD card capacity reporting, NEF (RAW) Type
Secondary slot function (D300S only), Secondary Slot Function (D300S Only), Secondary Slot Function (D300S

Only), Secondary Slot Function (D300S Only), Secondary Slot Function (D300S Only)
Backup, Secondary Slot Function (D300S Only)
Overflow, Secondary Slot Function (D300S Only)
Raw primary, JPEG secondary, Secondary Slot Function (D300S Only)

Select all images, Copy Images (D300S Only)
Select folder by number, Copy Images (D300S Only)
Select protected images, Copy Images (D300S Only)
Self-timer delay (c3), Custom setting C2 (D300S and D300)
Set Picture Control, White Balance
Setup Menu, Setup Menu, Setup Menu, LCD Brightness, Clean Image Sensor, Lock Mirror Up For Cleaning, Video Mode, HDMI, Time Zone and Date or World Time, Language, Auto Image Rotation, USB (D300 only), USB (D300 only), Finding a Subject for the Dust-Off Reference Photo, Image Authentication, Image Authentication, Copyright Information (D300S Only), Save/Load Settings, Preparing the Camera for GPS Usage, Preparing the Camera for GPS Usage, Selecting a Non-CPU Lens by Using External Camera Controls, AF Fine Tune, Eye-Fi Upload (D300S only)

AF fine tune, Selecting a Non-CPU Lens by Using External Camera Controls
Auto image rotation, Auto Image Rotation
Battery info, Finding a Subject for the Dust-Off Reference Photo
Clean image sensor, Clean Image Sensor
Copyright information, Image Authentication
Eye-Fi upload, AF Fine Tune
Firmware version, Eye-Fi Upload (D300S only)
Format Memory Card, Setup Menu
GPS, Save/Load Settings
HDMI, Video Mode
Image authentication, Image Authentication
Image comment, Language
Image Dust Off ref photo, USB (D300 only)
Language, Time Zone and Date or World Time
LCD Brightness, LCD Brightness
Lock mirror up for cleaning, Lock Mirror Up For Cleaning
Non-CPU lens data, Preparing the Camera for GPS Usage
Save/Load settings, Copyright Information (D300S Only)
Time zone and date, HDMI
USB (D300 only), USB (D300 only)
Virtual horizon, Preparing the Camera for GPS Usage

Shooting info display (d7–D300), Custom setting d7 (D300S) and d6 (D300)
Shooting Menu, Shooting Menu, Shooting Menu, Shooting Menu Bank, Active Folder, Active Folder, File Naming, File Number Sequence used with File Naming, Secondary Slot Function (D300S Only), Secondary Slot Function

(D300S Only), Final Image Format Ramblings, Image Size, JPEG Compression, Channel and Bit Depth Tutorial, White Balance, Resetting a Nikon Picture Control, Color Space, Color Space, Active D-Lighting, High ISO NR, High ISO NR, Are there any drawbacks to using ISO sensitivity auto control?, Live View Mode, Understanding Auto Gain, Movie Settings (D300S Only), Live View and D-Movie Modes

Active D-Lighting, Color Space
Active folder, Active Folder
Color space, File Naming, Color Space
File naming, Active Folder
High ISO NR, High ISO NR
Image quality, Secondary Slot Function (D300S Only)
Image size, Final Image Format Ramblings
Interval timer shooting, Movie Settings (D300S Only)
ISO sensitivity settings, High ISO NR
JPEG compression, Image Size
Live view mode, Are there any drawbacks to using ISO sensitivity auto control?, Live View and D-Movie Modes
Long Exp. NR, Active D-Lighting
Manage picture control, Resetting a Nikon Picture Control
Movie settings, Understanding Auto Gain
Multiple exposure, Live View Mode
NEF (RAW) recording, JPEG Compression
Primary slot selection (D300S only), File Number Sequence used with File Naming
Reset shooting menu, Shooting Menu Bank
Secondary slot function (D300S only), Secondary Slot Function (D300S Only)
Set picture control, White Balance
Shooting menu bank, Shooting Menu
White balance, Channel and Bit Depth Tutorial

Shooting menu bank, Shooting Menu, Shooting Menu, Shooting Menu Bank, Shooting Menu Bank

Author's Naming Suggestions, Shooting Menu Bank
On D300S Info. display edit screen, Shooting Menu Bank
Renaming banks, Shooting Menu

Shooting menu reset, Shooting Menu Bank
Shooting mode, Custom setting f2 (D300S) and f1 (D300)
Shooting/Display, D300 Only – Monitor Off Delay, Custom setting d1 (D300S and D300), Custom setting d1 (D300S and D300), Custom setting d2 (D300S and D300), Custom setting d3 (D300S and D300), Custom setting d4 (D300S Only), Custom setting d6 (D300S) and d5 (D300), Custom setting d6 (D300S) and d5 (D300), Custom setting d7 (D300S) and d6 (D300), Custom setting d9 (D300S) and d8 (D300), Custom setting d10 (D300S) and d9 (D300), Custom setting d10 (D300S) and d9 (D300), Custom setting d11 (D300S) and d10 (D300)

Battery order, Custom setting d11 (D300S) and d10 (D300)
Beep, Custom setting d1 (D300S and D300)
CL mode shooting speed, Custom setting d4 (D300S Only)
Exposure delay mode, Custom setting d10 (D300S) and d9 (D300)
File number sequence, Custom setting d6 (D300S) and d5 (D300)
Information (Shooting info) display, Custom setting d7 (D300S) and d6 (D300)
LCD illumination, Custom setting d9 (D300S) and d8 (D300)
Max. continuous release, Custom setting d6 (D300S) and d5 (D300)
MB-D10 battery type, Custom setting d10 (D300S) and d9 (D300)
Screen tips (D300S only), Custom setting d3 (D300S and D300)
Viewfinder grid display, Custom setting d1 (D300S and D300)
Viewfinder warning display, Custom setting d2 (D300S and D300)

Shutter priority auto mode (S), Get Down Grandpa!
Shutter-release button AE-L (c1), Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4
Side-by-side comparison, Edit Movie (D300S only)
Single-point AF, Continuous-servo AF Mode (C)
Single-servo AF (S), Single-servo AF Mode (S)
Size priority vs. Optimal quality (JPEG), JPEG Compression

Slide show, Rotate Tall, Slide Show, Slide Show, Slide Show, Slide Show, Slide Show, Slide Show
Exit, Slide Show
Frame interval, Slide Show
Pause slide show, Slide Show
Restart, Slide Show
Skip back/Skip ahead, Slide Show
View additional photo info, Slide Show

Slow rear-curtain sync, Custom setting e2 (D300S and D300)
Slow sync, Custom setting e2 (D300S and D300)
Small (S) image size, Final Image Format Ramblings
Sound (D-Movie–D300S), Dealing with Sound on D-Movies
Spot meter, Center-Weighted Meter
sRGB, Shooting Menu, Shooting Menu Bank, File Naming, File Naming, Color Space
File naming for, File Naming

Standard (SD) Picture Control, Examining Picture Controls
Switch, Backlight (f1–D300S), Section Six – (f) Controls: Custom Settings f1 to f11

T

TIFF, JPEG Positives, JPEG Positives
Positives vs. Negatives, JPEG Positives

Tiff image quality, JPEG Positives
Time exposures (Interval timer shooting), Movie Settings (D300S Only)
Time zone and date (D300S), HDMI
Timers/AE Lock, Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4, Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4, Custom setting c1 (D300S and D300), Custom setting C2 (D300S and D300), Custom setting C4 (D300S and D300)
Auto meter-off delay, Custom setting c1 (D300S and D300)
Monitor off delay, Custom setting C4 (D300S and D300)
Self-timer (delay), Custom setting C2 (D300S and D300)
Shutter-release button AE-L, Section Three – (c) Timers/AE Lock: Custom Settings c1 to c4

Trim (Retouch), Red-Eye Correction

U

Uncompressed NEF, NEF (RAW) Type
USB (D300), USB (D300 only)

V

Video editing software, Video Editing Software
Video encoding method (D300S), Progressive vs. Interlaced
Video mode, Lock Mirror Up For Cleaning, Lock Mirror Up For Cleaning
NTSC vs. PAL, Lock Mirror Up For Cleaning

Video quality (D300S), Which Video Encoding Method?
Viewfinder grid display (d2), Custom setting d1 (D300S and D300)
Viewfinder warning display (d3), Custom setting d2 (D300S and D300)
Virtual horizon (D300S), Preparing the Camera for GPS Usage
Vivid (VI) Picture Control, Examining Picture Controls

W

WB bracketing, Custom setting e5 (D300S and D300), Exposure Bracketing (AE and Flash Combination)
WB button, Method 1 – Manual White Balance Using the WB Button
White balance, Channel and Bit Depth Tutorial, White Balance, White Balance, White Balance, Method 1 – Manual White Balance Using the WB Button, Manually Selecting a Color Temperature between 2,500 and 10,000 K, Measuring Actual Ambient Light and Using PRE, Storing White Balance Values for Future Use, Editing the Comment Field, Adjusting a Saved White Balance's Color Values, Method 2 – Manual White Balance Using the Shooting Menu, Method 2 – Manual White Balance Using

the Shooting Menu, Method 2 – Manual White Balance Using the Shooting Menu, White Balance Bracketing, My Opinion about Auto WB, White Balance Tips and Tricks, White Balance Tips and Tricks
Adjusting a saved WB value, Adjusting a Saved White Balance's Color Values
Auto white balance, White Balance Bracketing
Bracketing, Method 2 – Manual White Balance Using the Shooting Menu
Color temperature, White Balance
Editing the comment field, Storing White Balance Values for Future Use
How does WB work?, White Balance
Manual white balance, Method 1 – Manual White Balance Using the WB Button
PRE, or PrE measurement, Manually Selecting a Color Temperature between 2,500 and 10,000 K
RAW mode considerations, My Opinion about Auto WB
Sample WB range image, White Balance Tips and Tricks
Shooting Menu screens, Method 2 – Manual White Balance Using the Shooting Menu
Storing values for future use, Measuring Actual Ambient Light and Using PRE
Tips & tricks, White Balance Tips and Tricks
Using WB from previous image, Editing the Comment Field
White balance bracketing, Method 2 – Manual White Balance Using the Shooting Menu

Wireless transmitter, Using an MB-D10 Battery Pack
Wording Legend (Colors), Colors and Wording Legend

World time (D300), HDMI
Wrap-around (Focus point), Custom setting a6 (D300S and D300)

Z

Zoom on/off, View histograms

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Darrell has used Nikon cameras and Nikkor lenses since 1980. He has an incurable case of Nikon Acquisition Syndrom (NAS) and delights in working with Nikon's newest digital cameras.

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He loves to write, as you can see in the Resources area of the Nikonians.org community. He joined the community in 2000 and his literary contributions led to an invitation to become a Founding Member of the Nikonians Writers Guild.